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REPORTS ON CARRIAGES

PARIS EXHIBITION, 1878.

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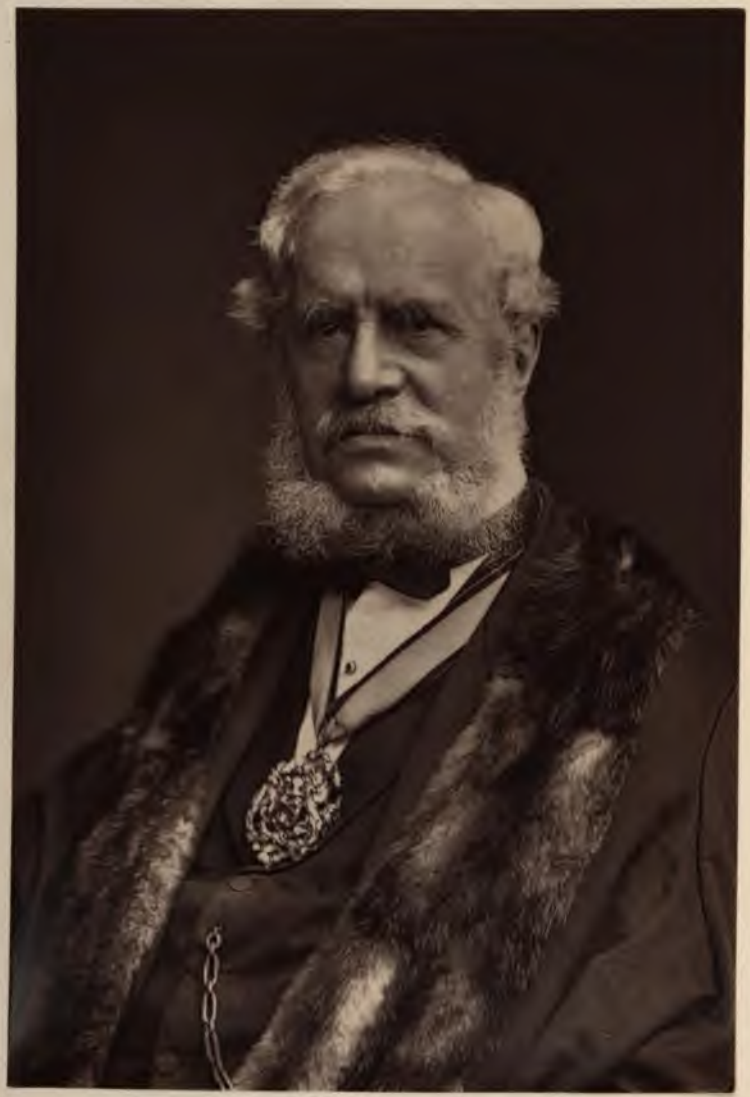

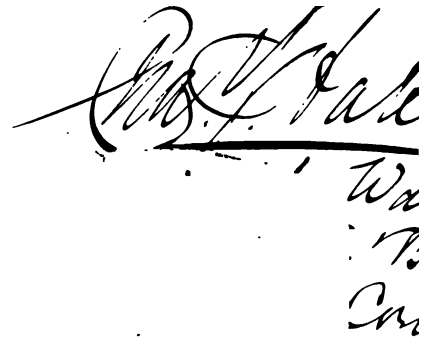

REPORTS

ON THE

CARRIAGES

IN THE

PARIS EXHIBITION, 1878.

By ARTISAN REPORTERS,

SPECIALLY SELECTED FOR THE DUTY BY ORDER OF THE WORSHIPFUL COMPANY OF COACHMAKERS AND COACH-HARNESS MAKERS OF LONDON.

WITH APPENDIX.

EDITED AND REVISED BY

CHARLES SAUNDERSON,

LATE MASTER OF THE SAID CITY COMPANY; FORMERLY OF HER MAJESTY'S AND OF THE LATE HON. EAST INDIA COMPANY'S SERVICES; DIRECTOR OF THE SUBMARINE TELEGRAPH COMPANY, AND OF THE GUARANTEE SOCIETY, BIRCHIN LANE, LONDON.

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INTRODUCTION.

PRIOR to the selection of the artisan reporters, the following circular letter and memorandum were addressed by the Master of the Worshipful Company to several of the principal Carriage Builders in the United Kingdom :—

THE HALL, NOBLE STREET,
FALCON SQUARE, LONDON, E.C.,
5th July, 1878.

DEAR SIRS,—I have the honour to enclose the accompanying memorandum, and if you should kindly recommend any Foreman or Workman well qualified for the duty named therein, your recommendation shall have due consideration when the selection is made.

The favour of a prompt reply will oblige.

I have the honour to be, &c., &c., &c.

ENCLOSED MEMORANDUM.

The Worshipful Company of Coachmakers and Coach-Harness Makers of London.

The COACHMAKERS' and COACH-HARNESS MAKERS' COMPANY OF LONDON consider much advantage would accrue to the trade, if a

well-qualified foreman or workman in each of the following departments :—*First*, Body Making—*second*, Carriage Making—*third*, Smiths' Work—*fourth*, Painting—and *fifth*, Trimmers' Work—be sent to the present Exhibition at Paris, to examine the Carriages there exhibited, and report on such specialities as ought to be known to the trade.

The Company therefore propose to select five[1] competent persons for the purpose, each of them undertaking to deliver a written report on his particular department, at the Hall of the Company, in Noble Street, Falcon Square, London, E.C., within one month from the date fixed for his departure from London for Paris. The Company will pay to each of these persons the sum of five pounds in advance, to cover his expenses to, from, and at Paris, and a further sum of five pounds after the receipt by the Company of his written report in London : such report to be the property of the Company for the general benefit of the Coach-building Trade.

The Company desire an early application for these appointments, as it wishes to arrange with the English Commissioners of the Exhibition, for the comfort and accommodation of the parties on their arrival at Paris. The day of departure from London is proposed for Friday, the 2nd August next, as at that time the parties may have the opportunity of visiting some of the large Carriage, Spring, Axle and Wheel Manufactories of Paris, and secure other facilities for making their reports accurate and useful.

5th July, 1878.

From the artisans thus introduced, and those who had been awarded prizes in the competitions that the Company had encouraged for many years, five artisans were selected to proceed to Paris and to report on the carriages in the Exhibition of the year 1878.

The day previous to their leaving London, they assembled in the Company's Hall, and received written instructions,

[1] A sixth Report is added, which completes the series, viz., as to Lamps, Plating, Chasing, &c.—*Editor.*

and were personally advised to avoid as much as possible naming builders individually, but to direct their attention to such matters as would be useful to British workmen in general; and the result is the interesting reports that are now submitted for the information of the Carriage-building Trade of the United Kingdom.

Excellent accommodation for the artisan reporters, while in Paris, was secured for them by the British Commissioners of the Exhibition, and by the Society of Arts, of John Street, Adelphi, London; and the artisan reporters, in the papers they have submitted, gratefully acknowledge the value of the assistance and comfort that was thereby secured for them while in Paris.

The personal arrangements made by the Joint Committee of the Royal Commission and the Society of Arts, were as follows:—

"Suitable lodgings, in the neighbourhood of the Exhibition, have "been secured at a maximum charge of 20fr. (16s. English) per week "in advance. Good dinners, served as in England, can be obtained "at 1fr. 50c. (1s. 3d. English), or three meals a day will be supplied "at 3fr. 50c. (about 3s. English), at the Workman's Hall, also near to "the Exhibition. Each artisan will have free admission at all times "to the Workman's Hall, where are reading and writing-rooms, "billiard and bagatelle-rooms, &c. Arrangements will be made to "enable artisans, as far as possible, to visit industrial establish-"ments and manufactories in Paris.

"Each artisan sent at the expense of the Fund will be paid £8.[1] "He will receive £5 on starting, out of which he must pay all "charges connected with his trip. On delivering his report, he will "receive the balance of £3.

[1] The Company's reporters have been paid £10 each.

"Free admission to the Exhibition will be granted through the "Royal Commission to each artisan.

"Each artisan will be furnished with a route card, by means of "which he will be recognised at the railway stations, both in England "and in France, and this will entitle him to attention from guards "and other officials.

"Arrangements have been made with the South-Eastern and "London, Chatham, and Dover Railway Companies for the purchase "of a return-ticket to Paris and back, available for fourteen days, at "the price of 20s., such ticket to be purchasable at the railway station, "in exchange for a certificate provided by the Society of Arts."

REPORT

ON

COACH BODY MAKING

BY

GEORGE FLEMING BUDD,

London.

CLASS 62 (CARRIAGES), PARIS EXHIBITION, 1878.

COACH BODY MAKING.

To the Worshipful the Master, Wardens, and Court of Assistants of the Coach and Coach Harness Makers' Company of London.

GENTLEMEN,—

Having received the honour of your selection as Artisan Reporter to visit the Paris Exhibition of the present year, and to report on the branch of Carriage building (Class 62) that relates more particularly to the body-making department, I beg to submit to you the following report:

Accompanied by my colleagues, I attended officially at the office of the Royal Commission on the morning of the 5th August, 1878, where we were supplied with free passes to the Exhibition, and received an invitation to meet Sir Cunliffe Owen, the indefatigable Secretary of the Royal Commission, at the Prince of Wales' Pavilion in the Exhibition grounds. Kindly welcomed by Sir Cunliffe Owen, he gave us such information as might prove useful, and placed at our disposal, as interpreter, a gentleman attached to the Commission, who ultimately proved of great value to us, not only for the purpose of interpreting, but also for our

admittance into several of the important carriage manufactories upon the presentation by Mr. Cowlrick (the gentleman attached to us as interpreter) of letters of introduction from the British Commission. My first visit to the Exhibition partook more of a preliminary survey, to acquaint myself with the locations of the Carriage exhibits of the various countries. Commencing with the Carriages in the French department, which form the largest collection[1] of Class 62 of any country represented in the building, I was impressed with the great progress the Carriage Builders have made since 1873, the last time I had the opportunity of comparing the French carriages with those of our own manufacture. They have pushed ahead while we have been content to stand still; they have not only made great improvements themselves, but have also readily adopted anything worth adopting from both England and America. They have apparently vied with each other, especially the Parisian manufacturers, each to render his own exhibit as attractive as possible, particularly in the general finish of the work, till they seem in some cases to have gone to extremes, and rendered the comfort and practical utility of a vehicle subordinate to its elaborate ornamentation. In this respect they differ from the English; and after seeing the carriages in the most fashionable thoroughfares in Paris, it can readily be observed that the carriages in the French department have been specially prepared and finished for the purpose of exhibition. It is also noticeable that the French have closely adhered to the English styles in the general design and shape of the bodies of their vehicles, especially in

[1] As an illustration of the energy and patriotism of the present French carriage-builders, it is said that they applied for space to exhibit 800 carriages; they were allotted room for 180; the space actually occupied was about as long as Westminster Bridge, the carriages standing in four rows along the entire length.—*G. N. Hooper's Survey of Carriages, Paris Exhibition. Wertheimer, Lea, and Co., London,* 1878.

Broughams[1], square or angular Landaus, and in their "Drags." In the latter description of carriage, which has become so popular during the last few years, though it is peculiarly an English carriage, the style has been so closely followed, and with such considerable success, that the French builders now appear as our formidable rivals in this branch of the manufacture. They exhibit no less than eight Drags, while England shows three. Five out of the eight are built on the old principle, with a spliced bottom-side, the door shutting in on the top of the moulding; the other three are modernised by having the cut-through doorway; but in common with all the French carriages, they are larger than the English prototype, and, being hung much higher, have not that compact appearance which distinguishes the English Drags. The recessed top quarter panels, which most of the French Drags have, together with the mouldings round both front and hind boots (in some cases, the mouldings being worked out of the solid, all the centre of the panel being "boxed" down) only afford a lodgment for mud and dirt, besides imparting a heavy appearance; they all, however, show first-class workmanship in their construction.

A novelty in the design of this class of carriage is noticeable in the exhibit of one of the principal Parisian manufacturers, who has at other times introduced several ingenious arrangements in carriages. It consists in the roof being so constructed as to admit of being opened in the centre, somewhat similar to the "cantrail" portion of a Landau head, with this exception, that the "cantrails" are left entire, as in an ordinary "Drag" body, the roof being left open between them; a cover is placed on the top of

[1] It has been asserted, but probably without truth, that the bodies of some of the French Broughams were made in England, but painted, trimmed, and decorated in France.—*Editor.*

the two portions of the head thus opened, and so forms, to all appearance, an ordinary luncheon-case with the ends open: it thus serves the purpose of a table when required. The apparent advantage in this arrangement is, that it affords an increase of ventilation to those riding inside the vehicle; but, at the same time, it entails the disadvantage of allowing a passage in rainy weather for the wet to pass into the body through the joint in the roof. The arrangement of the iron ladder for ascending to the outside seats, and the manner of disposing of it, when not required for use, in a locker in the front boot, are worthy of attention; as also the improved spring door-lock and handles, the latter having the form of horses' heads handsomely chased, the design of which, and the whole of the appointments, are quite in character with the style of such a carriage. One peculiarity with regard to the door-handle is, that the door is opened by slightly pressing the handle down, instead of turning it half way round, as in the ordinary manner. The French method of framing and panelling their Drag bodies, in the case of the recessed top quarter panels, previously alluded to, is effected by bringing the panel down over the elbow-framing, so that the lower edge of the panel itself forms the elbow-line, thus dispensing with the necessity of carrying a metal bead along the elbow, to conceal the joint of the panel on the elbow-framing; but the French Drags thus framed give to the English eye, accustomed to the line of beading, an unfinished and top-heavy appearance. Another Drag, exhibited by a firm of No. 24, Avenue des Champs Elysées, has, with the exception of the old-fashioned rounded moulding, "which has evidently been revived by the principal Parisian builders," the nearest approach to the English style: it is well balanced in its proportions, and great

attention has evidently been paid to the framing of the body as regards the rounding in, in both side and turn, under the sweeps; and although it is not so elaborate in its general finish as some of the others for style and proportion, it is as regards the body the best Drag in the French department. Their Drags, as a rule, are rounder on the side than English ones, which necessitates the use of heavier timbers, and consequently increase of weight. The Broughams, which form the largest number of exhibits in the aggregate of Class 62, show a variety of designs; those of the ordinary shape in the French department are very similar to the English style of body, though generally of a larger description. This is further increased in appearance by the French builders working their mouldings much narrower, both on Brougham and Landau bodies, than is done in English work, which gives to the lower panels a deeper appearance, and most of the bodies have the rounded mouldings; this fashion in the French carriages, where the panels are glued into the grooves instead of being whiteleaded, affords greater facility for the water to run off, though it is not so neat in appearance; nor is it generally approved of by the London trade. One exhibitor of Rue Bayard, Champs Elysées, Paris, who shows a nice-shaped single Brougham, has combined the advantages of the rounded mouldings with the neat appearance of the flat, by rounding the mouldings of the lower panels, and graduating them into a flat above the elbow-line.

Another plan is adopted by the French builders, who plate with brass the door pillars on both sides, right through to the "cantrail"; which, although not so liable to break away as the ordinary lip and mitre of the "shut" and hinge pillars, is more likely to become unsightly in wear, by the paint chipping away from the metal, beside not being so neat as the

ordinary finish. A new design in the shape of the lower quarter-panels of a Brougham is shown in one of the exhibits; the back panel is slightly hollow, or concave instead of convex, which is usually the shape, so that the corner pillar below the elbow, accordingly of the same sweep, gives the body a much lighter appearance, and as such is an improvement, when not carried so far as to encroach upon the inside seat room. This shape is becoming very fashionable in Paris, not only in Broughams, but also in Landaus, Victorias, and Sociables; and I saw several being built to that design in their principal manufactories. Two Broughams are also shown of new design, at least as regards Broughams, by an adaptation of the angular Landau door, both as regards the moulding, which is worked out of the solid of the door-pillars, on each side of the door panel, and the faint return turn-under sweep, which display first-class workmanship; the design has a good effect, though somewhat heavier in appearance than the ordinary door with brass lap-plate, and more suitable for full-sized bodies than those of a smaller description. A nice-looking single Brougham hung on C-and-under springs, No. 96, and another, hung on elliptics, No. 99, are noticeable from the peculiarities of the top line of the neck of the boot, or boot-line as it is most generally called, which does not, in these two instances, spring out from the body, from a continuous line of the elbow round the front of the body, as in the English shape, but from about 4 in. below the elbow-line. The only apparent advantage gained is that the boot-neck, where the edge-plate corner is turned, not being high up the front pillar, it avoids the necessity of upsetting and thickening the plate for the purpose of narrowing it, as in the case where the boot is 4 in. higher up, on account of the width of the pillar decreasing gradually toward the top. The upsetting and reduction in width of the edge-plate are more especially necessary when the front glasses are

required to drop down into the body, instead of sliding past each other; but even supposing this advantage to be obtained, the fore part of the boot must be made so much shallower, with a greater height of bottom arch, in order to provide sufficient room for the fore wheels to turn beneath, which seems to have been the case in both the bodies, or low wheels would be the result.

A novelty in the shape of a single Brougham is shown in exhibit No. 110. The front of the body, instead of being straight or slightly compassed, is about 4½ or 5 in. hollow; the back of the boot is of corresponding shape, and follows the line of the front at an uniform distance of about 2 in. off the front glass of the body; the encroachment upon the room inside at the front of the body is compensated for by the addition of about 2 in. or 2½ in. in length of body on the hind part, which being narrower than the corner pillars, to which it is joined by about 1¼ in. on each side, and painted black, like a rocker part, gives to it the appearance of an ambulance, and is most unsightly. The object of cutting off the fore part, and adding to the back, is not very apparent, though the work is well put together and highly finished. Another Brougham, exhibited in the French department, is built on a similar principle to one designed a few years since by a coach-builder in Wells Street, Oxford Street, London, with the hind wheels brought 7 in. or 8 in. more forward than is usual, for the purpose of decreasing the draught, which I believe to be a mistaken theory; it necessitates the door being shaped so that the width of door-way may be reduced by nearly one-half at the bottom, and thus the disadvantages far outweigh the advantages, and it was never favourably received. The French Broughams, like their Drag-bodies, are rounder on the side than the generality of English work.

The Landaus in the French department are about equally

divided in regard to general design. There are about as many canoe as angular-shaped bodies, though there appears an inclination among the French builders to depart from the angular style, by introducing sweeps and curves in combination with the straight lines, by which a more easy and graceful outline is produced.

It is somewhat singular, while the attention of the English coach-builders has, for the past few years, been directed to perfect an arrangement to open and close Landau heads in a simple and effectual manner, the French builders have paid little or no heed to the attainment of this desideratum, but have instead adopted a plan which allows of the doors of a Landau being opened when the glass is up, being first introduced by M. Kellner, of 109, Avenue Malakoff, in 1866. This object is effected by them in various ways, but all upon the same principle. The simplest method is to have two pieces of brass, about ten inches long, in form of a groove, for the glass frame to slide in, hinged to the upper extremities of the door pillars, and to close down on the fence rail when not required for use. A common plan is to have an entire frame of timber on the upper part of the ordinary door, which might be compared to an ordinary Brougham door, cut in half at the top of the fence-rail, and hinged on the inside, so as to fold down on the inner side of the door when not in use. When in use, it is kept rigid in position by a spring-catch, which fastens into the door pillar; the adoption of this plan renders the use of thick rockers necessary, which must be cut away to form a recess for the upper frame to close into, when folded down inside the door. The standing pillar-tops are much narrower than in the ordinary English Landaus, as no boxing-out is required for glass runs; the cantrail is also made shallower than in ordinary work; but when the head is up, and the door closed, and

the upper frame in position, it has rather a heavy appearance, because the double pillar-tops and cantrails show a greater width of timber than in an ordinary body ; the door pillars also require to be thicker than usual, in order to carry the moulding line up the increased width of double pillar-tops.

Another arrangement peculiar to the French Landaus is, that the inside seats are constructed so as to admit of being raised from three to four inches when the head is open. The object is no doubt to show to better advantage the handsome dresses of the ladies. For this purpose, the frames of the cane of the webbed inside seats are made detached from the body, and fit upon the ordinary boarded seat ; two pieces of one-inch birch, of a similar width to the height that the seat is required to attain, and of the same length as that of the seat frame, are then hinged to the boarded seat, one on each side, but not fixed in any way to the frame ; when the head is closed, these two pieces of birch lie flat, and the frame rests upon them ; but when the head is opened, the pieces of birch are turned up upon their edges by means of a small, ornamental handle concealed beneath the seat-fall ; and when the seat is raised, it is retained in its position by two iron studs or bolts from 5 to 6 in. long, which are fixed to the under side of the seat-frame, and which work easily up and down in a perpendicular direction in two holes in the body seat-rail.

A nice-shaped Landau, of good workmanship, being so arranged that the glasses open with the door, is exhibited by a firm of 104, Champs Elysées. An angular-shaped Landau, exhibited by a firm (that also exhibits a Drag) of 24, Avenue Champs Elysées, shows good lines, and is well-proportioned ; but the mouldings look narrow when compared with English work. Another Landau, by the firm of 40, Avenue Malakoff (who

also exhibit a Drag), is a first-class piece of coach-making, and nearly resembles the English shape and style. For design, workmanship, and proportion, it is the best Landau in the French department. In sad contrast to this, is the canoe-shaped Landau, exhibited by a builder in the Rue des Petites Ecuries, Paris, which, although of tolerable workmanship, is spoiled in its design; the out-line sweep of the bottom side is evidently an arc or segment, the result being contracted quarters, especially the hind ones, which require to be fuller than the front ones. It is also cut up too sharp at the extremities of the bottom side and elbow-line.

At the upper end of the department, there are three Landau bodies mounted in the wood and iron, without paint or trimming. They are the exhibits of three different firms of coach body-makers to the trade, and they all display first-class work. Two of them are side-light bodies, and exhibit something new to English coachmakers, in the arrangements for opening and closing the front portion of the head. The two side-glasses are so hinged to the front or corner pillars, that when opening or lowering the head, the side glasses open on the inside and fold on to the front glasses, where they are fastened to a light front pillar. The whole of the fore part of the head (which is fitted with spiral springs) can then be lowered with one movement of the hand, as there are no detached or loose parts; the front standing pillar-top and the front or corner pillar-top are hinged on the front at the lower joint, and at the back they are hinged to the cantrail, so that the standing pillar-top and corner pillar-top fall parallel to each other. The boot-seat (which is supported on iron stays) is hinged on the front, to turn up for the head to lie beneath it and rest upon the top boot panel beneath the seat. The arrange-ment of the coiled spring (12 in. long and $1\frac{1}{2}$ in. diameter) in

the front part of the side light (Landau No. 31, from Avenue Marbeuf, 8, Paris) is worthy the careful attention of English coach body-makers. The front spring, when the head is closed, lies in an oblique direction against the inside of the front elbow, the end nearest the door being about three inches higher than the other end; the spring is then connected, by means of curved stays or spurs, to both the pillar-top and the corner pillar hinges, the front stay curving upwards, and the hind one at the pillar-top downwards, by which the operation of lowering the head lengthens the spring instead of compressing it, as in the case of the majority of the English patents. The position of the spring is so adjusted that when the head is down, the front end of the spring is just below the horizontal, and the head is thus secured from any possibility of rising until assisted; the springs in the hind portion of the head act in a manner similar to those in McKenzie's plan, except that instead of requiring pressure to lower the head from the commencement of the operation of opening the cantrail, until the weight of the head itself is sufficient to effectually oppose the springs, in the French plan the head is not opposed to the action of the springs in any way till its own weight is sufficient to counteract their power. A stud having a round hole in it is fixed to the back of the pillar-top, and a long rod or spindle, which is fixed to the spring, and passes up through the centre of the coil, is then passed through the stud-hole, in which it is made to work easily, so that the head opens half way before the stud takes a bearing upon the spring; but the defect of this principle shows itself in closing up the head; the power of the spring is spent before the head is closed, and some force is required to close the cantrails. The principle adopted in the side-light Landau by a firm of coach body-makers to the trade, of Place St. Ferdinand, 29, is

far better than the previous one. The arrangement of the fore part of the head is similar in its parallel action, but the motive-power is differently applied. The spring consists of three or four ribands of steel springs, about one-thirtysecond of an inch in thickness and about three-quarters wide, forcibly coiled round a rod of three-quarters round iron about three feet long, in a similar manner to a watch spring. The rod and springs are recessed into the front body bar, and connected with the hinges of the front or croner pillar-tops, and answer the purpose intended very effectively. The hind portion of the head is fitted with the ordinary coiled spring in telescope barrels, after the English pattern; but both sides of the head are so arranged as to act in conjunction with each other, which is an improvement because it avoids any risk of straining the joints of the head, which often happens when one side of a head is closed or opened in advance of the opposite side. The improvement is effected by making the two hind props in one piece, with a long rod of round iron right across the body, instead of their being fixtures as in the case of the ordinary props; thus they turn in a circular eye made in the solid with the body corner-plates; that portion of the extremities of the props, on which the outside head-joints are fitted, is filed square, and, as the head rises or falls, the prop revolves in the eye, and so ensures both sides moving exactly at the same time.

It is a significant fact, and one that should not be lost sight of by English coach body-makers, that this exhibit is ticketed with the name and address of an English coach-builder to whom it is sold; and it is not the only instance of purchases that have been made on English account.

Another feature in the French Landaus is that the ends of

the valance or water-plate are left standing out about three-eighths or half an inch, and beyond the cantrail, instead of bending down over the side, as in the English carriages. Although a little unsightly at first appearance, it has the advantage of carrying the rain-water from the joint, instead of leading down to it, as in the ordinary English manner, and is therefore an improvement.

There are only three Barouches in the French department, the best of which for style and proportion is exhibit No. 122, from Lyons, on C-and-under springs. The line of the body on the top of the elbow is not carried through in the usual manner, but has a hollow or concave sweep on the door top, and thus gives the door a shallower appearance.

The Victoria Phaetons form a large class of the French exhibits; and with regard to their design, as with the angular-shaped Landaus, there seems to be an increasing tendency with the French builders to substitute easy and graceful sweeps, in place of the usual straight and angular outline, which relieves the usual stiff and disproportionate appearance of the original design of this favourite class of light carriage. Taken generally, they show good average workmanship. One thing noticeable is the good shape and arrangements of the heads of this class of work, which seem to receive considerable attention from the French builders, and are evidently arranged on an acknowledged principle, which is more than can be said of a very large proportion of the heads of similar vehicles seen in London during the past few years. The mouldings round the boot-sides and up the boot-neck of a large number of the French Victorias (which in most cases are boxed out of the solid), neither add to the light appearance nor general symmetry of the body. A very stylish-looking cab or park Phaeton, hung light on a C-and-under spring

perch carriage, having a crane boot and skeleton rumble is exhibited by the same firm that shows the drag with the opening roof. The hind part of the bottom side and corner pillar have a somewhat quick return sweep, giving a Britzka-shaped appearance to the back panel, which in the whole design of the body as mounted has a good effect. In fact, the whole exhibits of this firm (No. 109, Avenue Malakoff), which include a four-wheel Hansom hung low, with a front-booted driving-seat, are of excellent workmanship, and display good taste. An angular-shaped Sociable, standing opposite the last-noticed vehicle, is a nice piece of workmanship, and well proportioned. It is by the same builders as the Landau and Drag of 40, Avenue Malakoff, whose exhibits, taken as a whole, are the best in the French department.

The French are the only exhibitors of Private Omnibuses, of which class of vehicle they make a speciality. They are of a smaller description than those usually built in England, and seat only from four to six persons in the inside ; they are well designed, very light, and well ventilated ; and with one horse, with which they are generally used, are well adapted for railway-station work, as a quantity of luggage can be placed on the roof: they are also useful in country districts as a family vehicle. It is a notable fact, that whereas the French body-makers use considerably larger timbers[1] than the English do in the generality of their body-work, yet in their light Private Omnibuses they work very much lighter than we

[1] Taking the French carriages as exhibited, they are heavier than those now made in England ; there may be good reason for this, as notwithstanding the excellent paving in that part of Paris mostly seen by English visitors, other parts, away from the fashionable quarters, are anything but good ; even in the street where the works of the Paris General Carriage Company are situated, the state of the road is so bad that it would be difficult to match it in any part of London ; the company's carriage springs are in fact tolerably well tested in the very street where the carriages first emerge from the works, and before they begin to earn money.—*G. N. Hooper's Survey, Paris Exhibition*, 1878.

do. They rely more upon an effective system of plating the body, to which they pay great attention ; the bottom sides are not more than one inch and a quarter in thickness in most cases, and in one or two cases, the thickness only one inch ; and instead of being straight or flat along the outside on the mouldings, they are got out to a sweep varying from about one inch to one inch and a half round in four feet, and in most cases gradually decreasing upwards towards the elbow or belt line. The rockers are made shallow, but the body is deep on the side, so that the seat-rail may be framed in above the bottom side, and to allow about ten or twelve inches leg room without the cushions. The shallow rockers are no doubt intended to decrease the amount of compass necessary in the axle ; but they require the body to be hung higher from the ground. There are six lights, excluding the door light—one small one on each side of the boot, and two on each side of the body ; the latter are made as long and as deep as the framing will admit of, and have a light centre pillar of about one inch and a half in width between the glasses, which in most cases fall down into the body.

The Public Omnibus exhibited by the Paris Omnibus and Tramway Company is a well-built vehicle, but very heavy in appearance, and in this respect in direct contrast to the principles observed in the design and manufacture of the Private Omnibuses. It also has the appearance of being disproportionately high from the ground, as are all the street omnibuses in Paris. It is much larger than the London Omnibus, being about the same size as the Manchester 'buses, but much heavier, so that the power of the two horses which draw it seems inadequate to the task ; the consequence being, as might be expected, slow and tedious travelling as compared with that in London.

Few Dog-carts are shown in the French Department; the demand for this useful class of vehicle, either for business or pleasure purposes, being very limited as compared with the demand in England. The best exhibited is of varnished wood, and very well made, by the firm of A. Saint-Amand (Cher). The principal feature is an admirable arrangement for regulating its balance either for two or more persons, and relieving the horse from the weight while descending a hill. The act of opening the hind door for the purpose of a footboard removes the hind seat from under the front one, and arranges both seats in a proper position for balancing the weight of four persons; and on descending a hill, the act of applying the brake also lowers the body behind, and prevents the weight from unduly bearing upon the horse.

Working carriage drawings, to which much attention is given by the French coach-builders, are shown on the walls at both extremities of the Carriage Department. Those on the upper end include a well-executed, full-sized drawing of a Drag, mounted by Mr. A. Dupont, 2, Rue Guyot, Paris, a professional draughtsman. It is drawn with pencil and crayon on white paper, and finished with the details clearly stated, thus facilitating the work, as the body-carriage maker and smith can take their patterns and dimensions at one and the same time, instead of, as is too often the case, the body-maker working from a drawing of the body only, and the carriage-maker making his calculations with the aid of a straight lathe, and computing his own measurements, while the smith receives his orders entirely from the carriage-maker, a system that often necessitates vexatious and costly alterations. The drawing at the lower end of the department is by M. Brice Thomas, of 135, Boulevard Haussmann, Paris, also a professional carriage draughtsman. It consists of a Barouche body, hung on a C-and-under spring perch carriage. The principal object achieved is to demonstrate scientifically

the proper "hang" of the body-braces, and consequent position of the eye in the body "loops," assuming the body to be weighted in any ordinary manner which is fully described. This is shown geometrically, by determining the centre of gravity through which the line of the braces, if continued, should-pass. Two drawings are also exhibited by Michael Bail, one of a Landaulet and the other a Phaeton: the ground-plans and sections are very clearly and well executed, and show an intimate knowledge of the work.

A fine display of coach iron-work is exhibited on the wall at the upper end of the department. It includes door-locks in great variety, steps, Landau pillar top-hinges, head-locks, cantrail-joints, stump-joints, concealed and other door-hinges, and Barouche and Victoria neck-joints and finger plates, &c., &c., by Messrs. Dupaire, Lemoine, Hannoyer, Gerardin, Burel, Anthoni, &c. All show good sound forging, and are highly finished, especially the spring door-locks, which are shown on various principles. In the manufacture of these articles the French show great ingenuity, and excel the English manufacturers.

The English Carriages rank next to the French as regards numbers, but are disadvantageously placed, and are the only ones not placed within the main building. They stand in the British Machinery Annex, which is situated on the northern side of the building, opposite to the principal entrance—a place unsuitable for such costly and elaborate goods.[1]

Commencing with the "Drags," in the English section, of which there are three, though not displaying the excessive

[1] The following incident may illustrate the amusing side of the question: An English visitor asked an attendant where he would find the carriages; he replied, "To your right and left." After a short time he said, "I find the carriages here are all French; where are the English?" He pointed in the direction where they would be found, and said, "You will find them at the other extremity of Paris."

elaboration[1] noticeable in the French vehicles of similar description, they are all excellent specimens of good and sound coach-making; and have been evidently designed for the purpose of practical utility for which they are intended, and for general proportions they compare favourably with the French "Drags.' Those shown by the firms of 254, Oxford Street, London, and Upper George Street, Portman Square, London, adhere closely both in style and shape to the original pattern. The one from 313, Oxford Street, London, is, however, much lighter in appearance, and the lines of the body have been considerably modernised, especially the elbow lines, as well as the shape and proportions of both front and hind boots. It is undoubtedly the best Drag in the whole exhibition, both as regards workmanship and general design.

The Landaus in the same section, of which there are ten, make an imposing display. The whole of them are furnished with some description of mechanical arrangement to facilitate the opening or closing of the head. The angular-shaped, side-light Landau, by a Worcester firm, in particular is well worthy the attention of coach-makers, and will amply repay a critical examination. The fore part of the head is constructed on precisely the same principle, in respect of the parallel action of the pillar tops and disposal of the side glasses, as the Landau body in the wood and iron exhibited in the French department. The motive-power in opening and closing the front half of the head is, however, somewhat differently

[1] There is this to be said regarding the British exhibit of carriages, that they all, almost without exception, look as if they had been taken from the ordinary stock of the manufactories that produced them; it is likely that buyers would find in the coach manufactories in England similar carriages to those shown, even if they did not find better. Many of them are light, two and four-wheel carriages, for country use, at very moderate prices, of which special kind there is very little competition from other countries.—*G. N. Hooper's Survey, Paris Exhibition*, 1878.

effected. The top half of the pillar-hinge is continued below the knuckle or joint of the hinge, in a slightly bent form, away from the back of the standing pillar on the inside, the extremity of which is attached to a spiral spring working beneath the elbow; the boot-seat is supported on the front boot or leg irons, which are jointed at the top to admit of the seat being raised that the head may pass beneath it. When the head is closed, a jointed stay fits up into the socket beneath the hind part of the boot-seat, which not only serves as a support for the seat, but gives to the body the more finished appearance of a skeleton frame boot. This arrangement of the front boot-seat is copied entirely from the French, who adopted the plan some years ago. It has the advantage of considerably decreasing the length of the fore or boot portion of the body, by utilizing the space beneath the seat, for the disposal of the head; but the system never received favour from English coachmakers, who considered the rise of the boot-seat and the naked appearance of the single "boot" or "leg" iron to be unsightly. The body of this Landau has the new-shaped lower quarters, with a slightly hollow back panel, and it displays considerable taste in the general design. It is well proportioned, and is a fine piece of workmanship throughout, especially the head, which works with the greatest facility. The French plan of raising the inside seats has also been adopted, which affords the occupants a more elevated and, consequently, more extensive view when the head is down.

Nearly opposite the last-noticed exhibit is a nice-shaped, canoe, side-light Landau from Glasgow, the only carriage exhibit from Scotland. It is a most creditable piece of work. The disposal of the side glasses, while striking or lowering the head, is upon the ordinary principle, as

the glasses slide in a groove past the inside of the pillar-top and down into the door, and the front glass down into the body. The framing and rounding in of the body show careful execution and good workmanship; the symmetrical form of the body, as shown by the bottom side moulding, is well arranged, though a little too shallow in the quarter, at the expense of showing a deep rocker which, although recently the fashion, is now fast losing favour with the leading manufacturers. The lower quarters of the best work of both English and French builders, especially the latter, are fuller and bolder than formerly. The firm of 313, Oxford Street, London, also exhibits a well-made Sociable Landau, the lines of the body being remarkably easy and graceful.

A C-and-under spring Landau, from Long Acre, London, is a well-proportioned body, and of first-class workmanship; the same may be said of the full-sized canoe Landau, from Liverpool. A London firm exhibits two Landaus, one a canoe-shaped body on elliptics, the other an angular-shaped body on C-and-under springs; both display tolerable workmanship, but a mistake has evidently been made in the general design of the latter; either the perch carriage is from 5 to 6 in. too short, or the body is a like measurement too long. The hang of the traces, or the relative position of the hind portion of the cantrail and hoopstick, when the head is struck, and the hind braces, without the body being in the least weighted, will show at a glance that it is incorrect. A pair-horse canoe-shaped Landau, from Hastings, is shown, the principal feature of which is the simple and efficient means adopted for opening or closing the head, which is certainly the greatest novelty, if not improvement, in the English carriage department. The outside joints form of themselves the primary motors

of the automatic action of the head, and entirely dispense with spiral springs or any interior mechanism. The outside joints are made in two parts, and pointed as in the ordinary manner; but, instead of that portion of the joint between the knuckle and the top or bottom prop being made of oval iron, as in the ordinary joints, it is made of highly-tempered spring steel of an uniform thickness of about three-sixteenths of an inch, and about 1 in. wide at the knuckle, tapering to about half an inch at each extremity, where it is connected with the top and bottom props. The joints are made of a full length, so as to put a spring or grip into the head when closing it, thus keeping the joint fast and rigid. The depth of the door-rail is also proportioned, as well as the position of the joint in the pillar top, in such a way that when the head is opened and lies flat, the centre of the top prop falls a trifle below the horizontal line with the knuckle of the outside joints. This arrangement prevents the head from rising from the jolting or concussion of the carriage on the road, which frequently happens when patent spring heads are used. In opening or striking the head, the two spring plates which compose the outside joints fold flatwise, back to back in relation to each other. The weight of the head itself causes the head to fall, the effect being to curve or bend the lower plate of the outer joint; and being fitted on the elbow prop with a square in place of a round hole, instead of revolving round the prop in the ordinary manner, it is forced or strained down by the weight of the head; and the effort of the plate to unbend itself gives the necessary impetus for lifting the head again when it is to be closed. The cantrail is opened or closed simultaneously with the working of the outer joints which turn the pillar prop, to which the cantrail joints are connected by small levers, somewhat similar to the ordinary patent heads.

A canoe-shaped Landau, fitted with a patent automatic action balance-head, in the bare wood and iron, is exhibited by a London firm of coach body-makers. It is very light in contrast with the French bodies exhibited in a similar condition, and much simpler in construction; it shows clean and good workmanship, and is well plated. The inside body seats are made to rise in a similar manner to those in French Landaus.

Three Barouches are shown in the English department from London, Manchester, and Derby; the latter on elliptic spring-carriage, the others on C-and-under springs. For general proportion and design, the remarkably light canoe-shaped body from Manchester is the best; though the London one is of first-class workmanship and of good shape.

The same Manchester firm exhibits a very nice-looking and light square-fronted Brougham, of good shape and workmanship. The Brougham from the firm in George Street, Portman Square, London, is also of excellent workmanship, and retains that substantiality for which the manufactures of those well-known builders are noted. The substitution of iron pump-handles in the place of the plated wood ones, in solid with the short bottom sides (a system of body-framing peculiar to this firm), is a decided improvement. Light single Broughams, hung on C-and-under-spring perch carriages, which are much used, and of late have become a very popular class of carriage in England, are well represented in the English section, not so much in regard to numbers as to excellent design, workmanship, and high finishing. Those from Oxford Street (London), Long Acre (London), and from Worcester, were especially worth attention, being well-built and correctly balanced with regard to general proportion. The one from Worcester, which is the smallest of the three (though the shape of the boot will

admit of a little improvement, the lines being rather stiff), is equal, if not superior, to any similar description of carriage in the exhibition.

A very tasty-looking angular Sociable (the only one in the English section), also from Worcester, is well worth critical examination as regards form, design, and workmanship. The new-shaped quarters particularly have a light and stylish appearance.

Only three Victoria Phaetons[1] are shown among the English carriages. Two of them are hung on C-and-under-springs, the other on elliptics. Of the former, that exhibited by the firm of 313, Oxford-street, London, is for workmanship, design, and finish, the best of the three. The head—an important feature in this class of carriage—is well arranged. The other C-spring Victoria is more modernized in shape, the bottom line of the boot, neck, and arch being an easy sweep, which gives to the body a graceful appearance, and admits of the fore part of the body and boot being better proportioned.

The Dog-carts, which form the largest number of vehicles exhibited in the English department, are a fine collection, being of every conceivable shape and design ; and though this class of vehicle is not generally made a speciality of by the leading carriage building firms, yet on the whole the present collection contains specimens of first-class workmanship. A considerable amount of ingenuity is displayed in the construction of several of them, one of the principal objects sought being to effect arrangements for the perfect adjustment of the seats for balancing the weight for the horse ; and to adapt the shafts for any sized horse used in the draught. All this is shown in the Dog-carts from Norwich, Windsor, and Peterborough. A remarkably light body, of spider-like construction, but showing good workmanship, is

[1] These carriages had originally curved lines.—*Editor.*

exhibited by a Leamington builder: it is without exception the lightest Dog-cart in the Exhibition. A coachmaker of Camberwell, London, exhibits a Dog-cart which is fitted with an appliance for self-righting the body in case of the horse falling. This contrivance thus prevents an accident to the occupants.

In the vehicles from the British Colonies there is nothing calling for especial notice. Those from Canada (with the exception of a Pony Phaeton, a Victoria, and a Stanhope Phaeton, of ordinary shape and workmanship) are more or less typical of the light vehicles of America; so is the well-built and stylish-looking Buggy, with shifting seats, to carry from two to six persons, in the Victorian section, sent by a Melbourne manufacturer.

The American carriage-builders, like the French, have made great progress during the last few years, not only in specialties of light vehicles, such as Wagons, Buggies, and Trotting Carts, for which they stand unrivalled, and in the designing of which they show great discrimination, by proportioning the various component parts, to obtain the maximum of strength with the minimum of weight in the material employed, but also in the heavier description of European carriages,[1] of which a leading New York firm has a very fine exhibit, the Drag, Brougham, and Landau being especially worthy of notice. The bodies are well proportioned and of excellent workmanship, and more closely resemble the English style than even the French work, both in general design and method of framing the bodies. The doors of these vehicles are hung with a patent improved concealed door-hinge, which is well worthy of attention. By the use of

[1] It is of importance to consider the great advantage of a well-hung and balanced carriage, as well as weight: the universal testimony of coachbuilders is that such a carriage follows the horse better than a clumsy, ill-balanced carriage; nor is it necessary to have the wheels very close together. The advantage in wagon-

these hinges, a door can be unhung and removed, without either withdrawing the screws or disturbing the paint, and thus a considerable saving both in time and expense is effected. They are not only useful in repairing doors, but the painter is also able to paint and varnish his doors, if required, entirely independently of the body, and hang them afterwards. In shape the new hinge is similar to the ordinary concealed hinge; but instead of the iron bow portion working on a pin centre, it works in a slotted groove in the brass box portion of the hinge; thus, when the door is open to the full extent, it can be lifted off by the bow, which is furnished with a stud or stop on its extremity, to confine it within the groove, passing upwards through an aperture in the upper part of the box portion of the hinge. One or two of the French carriages exhibited are furnished with similar hinges, though I had not an opportunity for examining them. The

nettes and such like carriages is, that the chief part of the weight is carried by the *higher* wheels.—G. A. Thrupp, *on Weights of Carriages*, 1878.

The following average weights of English carriages have been published by Mr. G. A. Thrupp, London, 1878:—

VEHICLE.	WEIGHT. CWTS.	VEHICLE.	WEIGHT. CWTS.
FOUR HORSE Drag ...	22	*One Horse.*	
Pair Horse.		Landau	11
Street Omnibus ...	24	Very Small ditto ...	9
Private Omnibus ...	14½	Bow Brougham ...	10½
C-spring Landau ...	17	Miniature Brougham ...	8½
C-spring Barouche ...	14½	Large Single Brougham	10
Elliptic Landau ...	13	Very small ditto ...	7
Small ditto	11	Small Wagonette ...	8
Clarence Brougham ...	12	Victoria	7
Large Single Brougham	10½	Phaeton T. Cart... ...	6
Bow Front Brougham ...	10½	Pony Phaeton ...	5
Large Wagonnette ...	9½	Basket ditto ...	4

doors of the American carriages work remarkably well and freely, equal in every respect to doors hung with the ordinary concealed hinge. Its use, however, will alone decide whether the new hinge, in course of time, from continual wear, will not become worn in the groove, and cause the door to drop sooner and lower than with the ordinary hinge. The Racing Sulky, by the same builders, is of excellent workmanship, and is the lightest-constructed vehicle in the Exhibition. A number of light two and four-wheel Buggies, Rockaways, and Wagons, of the peculiar American type, are shown from Cortland, N. Y., U. S., Chicago, and South Bend, Ind. The double-seated body, from the latter place, is well built and tastefully finished; but the best exhibits of this description of vehicle are the two Buggies fitted with heads, or "extension tops" as the Americans call them, from North Cambridge, Mass., U. S. A.

Taking the Austrian department next, if the vehicles shown are to be taken as a fair criterion of the carriage manufacture, which has hitherto been a very important one in that country, they do not exhibit the amount of progress made by their French neighbours, or even what might have been expected of them, considering the large extent of coach-building carried on in Austria. On entering the department, the first carriage is a well-built Victoria or Vienna Phaeton, exhibited by a large and well-known firm of Vienna. It is well designed, and of good proportion, as far as regards the body; but is spoiled by the head, which is out of all proportion, there being apparently but 3 ft. of clear head room from the top of the seat cushion to underneath the hoopstick, which is from 6 to 8 in. less than usually given in English carriages. Opposite the latter exhibit is a Cab Phaeton by another firm in Vienna, and, like the previous one, it is of good,

sound workmanship, which is all that can be favourably said of it. It is heavy in appearance, especially the boot; the sham doors or pillars throw out much more than is usual in English work; and the sweep, being very faint, gives to it a stiff and awkward appearance; the throw-out, which is about 12 in. on each side, contracts the rockers very much, and they are continued along to the front boot, which, in consequence, is also very narrow, and provides seat room for only one person. Near to the Victoria Phaeton first noticed, a firm at Nesseldorf (Austria) exhibits a nice-looking Stanhope Phaeton in varnished wood; the body framing is on the French principle, and of good and clean workmanship, as well as light in appearance. Another firm from Vienna exhibits an angular-shaped side-light Landau, which is heavy and "tubby" in appearance. The head has the ordinary arrangement of drop glasses; but the French principle of hinging the boot-seat is adopted, to allow the fore part of the head to fall beneath it. The arrangement of the lever door-handle, which is in the centre of the door-panel, about the usual distance below the elbow-line, is somewhat peculiar in appearance: this central position of the door-handle is intended to serve a double purpose; the turning of the door-handle raises a small flush metal plate on the top of the door-rail, and lifts the glass frame over the fence-plate down into the door-rabbits, at the time it unlocks the door, by which the ordinary lever locks are dispensed with, an invention first introduced by the French builders, in 1867, and since abandoned by them. But, either from the strain of the leverage of the interior mechanism, or the imperfect fixing of the escutcheon on the panel, the use of this principle has a tendency to split the door panel, and, as such, is faulty. Three carriages in the Exhibition, fitted with these locks,

have no less than four of the panels split from the spindle-hole.

The carriages in the Belgian section have a remarkable resemblance to the French work in shape and style; but, with one or two exceptions, they are inferior to them as regards workmanship and design.

A builder from Brussels exhibits a well-built and nice-shaped single Brougham, having the French style of half-round moulding, with the exception of the bottom of the door panel, which is left plain, without any moulding. The doors are hung with the ordinary butt or common hinges, and have a long cranked flap on the portion fixed to the door pillar, the knuckle of the hinge being carried back 1¾ inch from the door when shut, so that the door when opened is thrown back clear of the width of the doorway, which is the same result as is attained by the use of the ordinary concealed hinge, and similar to a plan adopted by a firm at Manchester a few years since; but, from being let into the outside of the body, and cutting away the top quarter panel, it looks unsightly, and has neither advantage nor appearance to recommend it.

Another well-shaped single Brougham, of first-class build, is exhibited by another firm from Brussels, of the Boulevard de la Seine. In design it is a close copy of the French Broughams; and, like the majority of them, it has the half-round body-mouldings. The glass runs in the upper portion of the door, being fitted with a metallic rack, into which a spring catch works (let into the side of the glass frame), that the glass frame may be adjusted to any height. The patent spring door-locks in this exhibit are also noticeable, as being simple in construction, and, at the same time, most effectual for use: they are patented by the builders of the carriage.

Two creditable-looking Landaus are also shown in the

Belgian section; in one from Antwerp, the French method is adopted for opening the doors, with the glass frames up the body. The mouldings are flat, the inner edge to the panel being bevelled, which looks much lighter than rounded mouldings, but not so finished in appearance as the quirked moulding. The elbows of this body have been framed in perfectly square or horizontal, which gives the elbow moulding-line the appearance of dropping at each extremity, in reality an optical illusion, caused by the round or side sweep of the body, and should have been counteracted by giving to the elbow a rise of from three-eighths to half an inch. The angular-shaped Landau from Rue Progrès, Brussels, is also of good, sound workmanship, and well proportioned; and, like the last noticed exhibit, the body-framing, style, and finish, in every respect are similar to the French work.

Italy makes a very creditable display of carriages, which, though copying the French shapes and style to some extent, have generally a more plain and substantial appearance, and in this respect more resemble the English work, though of a larger description. This is especially noticed on examining the finely-shaped Calèche or Barouche body, hung on a C-and-under spring perch carriage from Milan. It is of first-class workmanship; careful attention has been paid to the rounding in of the side, and the sweep of the bottom side throughout; the lines of the body and general appearance very closely resemble English work. The only Brougham exhibited in this section is of ordinary workmanship, with, however, a variation of a return turn-under sweep below the elbow line, similar to an angular-shaped Landau body, which has a good effect. Of three Landaus shown by Italy, one is a canoe-shaped body, of the ordinary pattern, calling for no special notice; the other two are angular-shaped. The one from Milan has

a barouche-shaped door, framed with a shallow door-rail, a style not now so fashionable in England as it was a year or two since, by which a deep door-light is obtained, and which requires the use of double glass frames. The body is also fitted with the lever-handle in the centre of the door, similar to that noticed in the Austrian section, and shows the like defect. The other angular-shaped Landau is of good proportion and well made, and has the French style of rounded body-mouldings. The cantrails of the head, however, do not fit between the pillar-tops, but extend the whole length on the pillar tops, the head prop being fixed in the cantrail instead of on or through the pillar-top, as is generally the case in English work. In striking or opening the head, the outside joints open the cantrails, on account of the square hole in the outside joint fitting on the square bolt part of the top prop, which is immovably fixed in the cantrail. As far as I could ascertain, not one of the Italian Landaus is fitted with any mechanical arrangement for opening or closing the head. A Chariot, one of the only two exhibited (the other being in the French department) is shown by a firm from Turin, Italy, which also exhibits the last-noticed Landau. It is a good-shaped body, but of ordinary workmanship, and after the French type. A novelty is shown from Milan, called by the Exhibitor a three-quarter Landaulet, the body below the elbow-line being something similar in shape to a small chariot body, with a shallow quarter, and a deep, unsightly-looking rocker, and having a front boot. In opening the head, the hind part falls in a similar manner to an ordinary Landaulet; but in the fore part, the glasses, of which there are two, fold together, and the whole of the fore part, which is hinged at the fence-rail, falls bodily over the front boot, the front boot seat being hinged for the purpose in such a manner that the

fore part of the head falls over the boot, not resting on it, as in the French Landaus, the front pillar resting on the lamp irons. The door handle is in the centre of the door panel. The workmanship of this curious piece of work is of the most ordinary description, and the design appears too complicated ever to become acceptable to carriage-users.

Russia has a very fine exhibition of carriages, which comprises five Victorias, one single Brougham, and a Landaulet, besides the national vehicles of the country. The first-named vehicles are remarkable for their superior design, excellent workmanship, and finish. The single Brougham and Landaulet are of good shape, light in appearance, and, like the Victorias, closely resemble the Parisian style, which is reproduced to the minutest detail.

In reviewing the Exhibition of Carriages at Paris, it is an undeniable fact that, as regards exterior appearance generally, the French exhibits are superior to those of any other country for design, taste, and general finish ; though, for lightness and durability, the English work far surpasses them. The great improvement in French carriage-building appears in a great measure attributable to the efficient system of the training given to workmen and young men who attend the schools for carriage-builders, of which there are two in Paris. The time chosen for my visit to Paris unfortunately happened to be identical with that of the annual vacation at both the schools, and I was thus unable to attend the classes, which at other times are open every evening, and a lecture is given once a week. One of these schools is entirely managed and supported by working men, the other one partly by employers[1] and

[1] FRENCH CLASSES FOR TECHNICAL INSTRUCTION IN COACHMAKING.—In our last number, we printed a translation of the Rules and By-laws of a Society formed in Paris, under the patronage of the Syndical Chamber of Coachmakers, with the object of establishing classes for professional and artistic instruction in

partly by working men. At each school, a course of instruction is given in freehand drawing, solid geometry, carriage (body and under carriage) designing and draughting, and the proper method of laying the lines of work out in plan and section, commonly known as "the French rule." I regret I was unable to thoroughly acquaint myself with the principle of this rule, the more so as, from the observations I made, where I saw it in practical use, I failed to see the advantages claimed for the principle in expediting the work. It would be a desirable thing, if the principle of the French or square rule, which is said to be based on solid geometry, could be thoroughly mastered and taught by a practical coach body-maker, so that English coach-makers might avail themselves of similar advantages (if any) to those of our French neighbours. From inquiries, I was informed that both the schools are well attended; that the masters or teachers of each are thorough practical mechanics engaged in coach-making, assisted by professional carriage draughtsmen. The result of such teaching might be expected to be a development of any latent talent in the mechanic, a natural cultivation of the hand and eye to beauty of form, and a correct knowledge of the principles of design, so essential to ensure success in the manufacture of carriages.

Although the English carriages do not exhibit the taste, variety of design, and high finish of the French vehicles, there is in their more subdued appearance a substantial, distinctive look about them: the method of

coach-making. This Society, whose ranks are open to all persons having a wish to co-operate in the work, opened its classes on the 24th September last, in a hall situated No. 76, Boulevard Courcells. All the places in the drawing classes, to the number of sixty-seven, were filled on the first day, and the number of students who have since enrolled themselves is so great that it is thought probable that the hall will have to be enlarged.—*Coachbuilders' Gazette*, 1878.

construction of the body of English work being in many respects superior to the French, we are able to build much lighter carriages, without in the least decreasing the strength required. Their peculiar system of construction necessitates the use of larger timbers and heavier plating.

The Americans, like the French, have made great improvements in carriage-building during the last few years, and the present Exhibition proves that they can successfully compete with both English and French manufacturers, in either the English or French type of vehicle. They seem to have culled and adopted the most meritorious points of each country, availing themselves of the English solid system of construction, and the French style of design and general finish, which they have reproduced with great success.

The Austrian carriages show a considerable falling off compared with the high-class vehicles exhibited by them on former occasions. The vehicles, although well built and highly finished, are, with one or two exceptions, faulty in design and the general proportions defective.

The carriages of Russia, like those of France and America, show a vast improvement on their exhibits in previous years. The cause, as in the case of France, may doubtless be traced to the facilities afforded to the Russian mechanics of acquiring a knowledge of drawing and design in the art schools, together with a system of technical training, which is becoming rapidly developed in many parts of that country; and to the fact, that sons of Russian coach-builders attend the private classes of carriage draughting in Paris; which may also account for the close resemblance of their carriages to the Parisian style. The exhibits from Belgium and Italy are mostly of the French pattern, especially those from the former country; but they lack that attention to detail and superior finish so visible in the French vehicles. The

Italian carriages, for general appearance and construction, are of a fair average description, but of a larger size[1] than those from any other country.

Before I left Paris, arrangements were made through the kind intervention of Sir Cunliffe Owen, whereby I had an opportunity of visiting many of the principal carriage manufactories of Paris, with which I was highly interested.

My first visit was to the extensive workshops of the Paris Omnibus Company, where I was kindly received by the officials, and shown over the entire establishment. An average of nine hundred workmen are continually employed, whose labour is supplemented by powerful steam machinery, worked by two engines of fifty and forty horse power respectively, which accomplish work in almost every department. The round timber or logs are sawn into planks, and the planks converted into the various shapes required for omnibus building, either by circular saws for straight cuts, or the band saw for curvilinear forms. At the time of my visit, no new work was going forward in the body-shop, but the whole of the wood-working machinery was in motion. Their planing-machine works with a perpendicular motion, instead of over an horizontal table, as is generally the case in English shops that employ steam power. The mortising operation is performed with Morse's American twisted drill, which can be easily adjusted to any required depth, and to any height above the table. The mortise work that was being done was accomplished by inserting the drill the full depth of the mortise, and working it backwards and forwards in an horizontal direction, so that the whole length of the tool cleans out the wood to form the mortise, and works with greater precision than our ordinary mortising machine which works perpendicularly. The timber used in the

[1] Probably necessary in so warm a climate.—*Editor.*

framing of Omnibus bodies is generally a native ash, of a much milder description than English ash, remarkably clean in the plank, free from knots, &c., and which works up very freely. Acacia, also of native growth, is extensively used in Omnibus building; and immense quantities of both descriptions of timber, together with sycamore and poplar boards of 1 and 1½ in. in thickness, which are used for the same purposes that birch and elm are used for in England, were stacked in well-arranged drying-sheds, till sufficiently seasoned for use. This Company has about seven hundred Omnibuses, besides Tramcars, and has adopted an uniform system of building its Omnibuses, similar to that of the London General Omnibus Company, and which is found to work advantageously, by facilitating the execution of repairs on the interchangeable system, so that poles, bars, wheels, axles, axle-boxes, and complete fore-carriages, &c., can be readily and quickly replaced as necessity requires.

My next visit was to the Paris Public Cab and Carriage Company's works. The Company owns no less than 3,000 public conveyances in Paris. The vehicles are of great variety; single and double-seated Brougham Cabs, single and double-seated Victorias, four-wheel Hansoms, canoe and angular-shaped Landaus, and small, light Omnibuses. The Brougham Cabs of Paris are a decided advance upon the miserable-looking four-wheelers of London,[1] both in their general appearance and in their more comfortable appointments for riders. In shape they are similar to a private miniature Brougham, and are constructed with similar side-sweep and turn-under. But the great feature in the Paris cabs is the excellent slam or spring-

[1] A great improvement is apparent in the London cabs, and it is to be hoped the old ricketty cabs of London will soon be a thing of the past. They are now under the inspection of the police, and it will be the fault of the authorities if such vehicles continue to disgrace the streets of London.—*Editor.*

locks with which they are all fitted. The locks are simple in construction, yet answer the purpose most effectually. Similar locks are now used on the doors of the North London Railway carriages, and are found to answer admirably. The occupant of the cab can close the door easily by merely pulling it to, without requiring the driver to quit his seat and the control of his horse, a practice which has been the cause of innumerable accidents by the horse starting on the slamming of the door. These locks and handles can be as readily affixed to the doors as the old-fashioned ones used in the London cabs; beside being neater in appearance, they can be purchased at a very moderate cost. Those used by the Paris Cab Company cost only four shillings per pair complete, and are supplied by Messrs. Huard and Normand, 34, Rue Rennequin, Paris. The small, light Landaus of this Company are neat and compact in appearance, and fitted with the spring-locks. The Victoria Phaetons, which are of the ordinary pattern, are very popular with the Parisian public, and during the fine weather, are more patronized than the closed cabs. The small omnibuses which are drawn by one horse are generally used for railway-station work, for which they are well adapted. They are constructed to carry six passengers inside, with ample accommodation for luggage outside. For such carriages, they are remarkably light, well ventilated, and comfortable.

The Company employs, on an average, eight hundred men, and, like the Omnibus Company, makes use of steam power in every department of its extensive works. At the time of my visit, a large number of Brougham cab-bodies were being built, and others repaired, in preparation for the coming winter season. The body-framing is mostly of native ash, French walnut occasionally being used for the front and standing pillars; but neither of the timbers

is so strong as the English ash that is used in London cab-building, consequently their bodies do not last so long. Instead of wood-panelling for the lower parts of the boot-arch, zinc is pinned on with stout French iron-wire pins, three-quarters of an inch long, the heads of the pins being filed off flush. All the upper parts, such as top quarters and top back, and the bootsides, are covered with sheet-iron, one-sixteenth of an inch thick, in place of wood, also pinned on with stout French pins, and filed off flush; the lower panels, such as bottom back, bottom quarters, and door panels, only being of bay wood. This system of panelling is but an experiment, as nearly all the cabs running in Paris have wood panels; and it is likely that sheet-iron panelling may, after a little wear, impart a disagreeable, drumming noise, though we were assured by the manager that such would not be the case, in consequence of the peculiar arrangement of the trimming. He showed to me that wooden battens were framed inside the sheet-iron, as in the case of ordinary wood panels; and each batten was canvassed, with ordinary glueing canvas, to the sheet-iron, for the purpose of preventing any vibration. This naturally excited my curiosity, as any English body-maker knows from experience, that glued canvas will not adhere to iron with any permanency, on account of the absence of pores on the surface of the iron to hold the glue. On my enquiring further, he said the reason of the canvas adhering was, because the iron was previously coated with a substance to which the glue adhered; that the preparation applied was composed of dry white-lead, to which was added one part of raw linseed oil and twenty parts of turpentine, mixed together very stiff, to the consistency of thick paint, and applied with a brush to the surface of the iron, and which, when thoroughly dry and hard, held the glueing canvas effectually. I have not yet personally tested this receipt, to prove its correctness or

efficacy; but, in attempting to remove the canvas from the sheet-iron on the bodies under inspection, I certainly found it impossible to do so with any ordinary exertion. The whole of the framework of the bodies is glued together at the joints; the glue used being much stronger and better than that generally used in England, and is mostly manufactured by Alberic Parent Givet, France. This method of glueing work that will have to withstand all kinds of weather, not only appears a defective system, but also is so practically; for I saw, in passing through the repairing shop, in nine bodies out of ten, the boots had either started or dropped away from the body, and the lower quarter panels, which are also glued in the grooves, had started, and the whole of the short bottom sides had rotted away, by the wet working into the groove; and in most cases, although the bodies had only been out one season, they exhibited more dilapidations than a London cab would after two years' hard work.

On an upper floor, the Company has a spacious showroom, where there are in store no less than 250 vehicles all finished and ready to go out as occasion requires. This number includes Brougham Cabs principally, beside Victorias, about twenty Landaus, a similar number of four-wheel Hansoms, and about thirty old friends in the shape of four-wheel cabs, built exactly after the old London pattern. It may be mentioned, as somewhat singular, that there are no two-wheel Hansoms in Paris. The speed of the public conveyances of Paris, whether in omnibuses or cabs, is far less than that of London; and the peculiarity of driving on the right-hand side of the road in the direction in which the vehicle is going, or what we should call the wrong side, seems awkward to an Englishman.

In visiting various manufactories of the private carriage-builders, I received the greatest courtesy and

kindness; and every facility was given by the principals for the inspection of the various departments of their works. An admirable system is pursued in the French coach-making shops, each department being distinct and complete; and machinery, worked by steam power, enters more largely into the manufacture of carriages in Paris than in London. Their body-making is carried out with a greater amount of taste and accuracy than it is in England; in fact, the work of the French body-makers more resembles a superior quality of cabinet work; but this, like the general finish of their carriages, is often carried to extremes; and the strength and consequent durability of a body is too often made subservient to the precision of its workmanship.

The timber often used for body work, as before stated, is a native ash, of a clean and mild quality. In England it would be called good body-timber; but the principal timber employed is a native walnut, much milder in working than the ash, and likewise remarkably clean in the grain, and so white in appearance as in some cases to nearly resemble ash. A light-coloured timber, almost white, of the willow species, which is very tough and works up well, with a good, close, silky-grained surface, is generally used for panels. Mahogany or bay-wood, and walnut, are also used for panels; and white wood is much used for underneath and covered panels; but no cedar appeared to be used. Poplar and sycamore of native growth are largely used for footboards, rockers, bootsides, &c. In commencing a body, the foreman, or principal workman of the body-shop makes a full-sized drawing of the body to be built, in chalk on brown paper, and places it upon a bench flatwise, in a central position, to be easy of access, allowing more than one man to be employed upon it. This is requisite where the French rule system is worked to, but a knowledge of which I found by no means general at present; in many of the

principal Parisian shops, I found the system either ignored or not understood: the more common practice is, to work from an ordinary "cant" or plan, the same as used by English coach-makers, which they mark in immediately beneath the drawing of the elevation. In getting out the timbers for a Brougham body, the front, the standing and corner pillars, and short bottom sides, are generally of walnut; the rockers, cantrails, boot and cross-framing, of ash; but no attention appears to be paid to the judicious selection for adaptability of the various timbers composing the body: for instance, the short bottom sides to which the pump-handles are bolted, or the rockers to which the steps are fixed, are as mild in quality as any other part of the body. In fixing the body together, no white-lead is used in the joints, for the purpose of excluding the wet, but glue is used instead, which occasions a somewhat different method of framing to the English style, inasmuch as most of their joints are both tenoned and lapped on the outside, for the purpose of presenting as many surfaces for glueing as possible. A door-rail, therefore, either for a Brougham or Landau, is not only tenoned on each end into the door-pillars, but is lapped also over the pillar on the outside, which is unsightly in finished work, as it shows the joint plainly and horizontally across the pillar; whereas, in the English method of door framing, the joint is perpendicular, and so arranged in the boxing out of the waisting round the door light, as to be entirely concealed. Again, in the front part of the cantrails of their single Broughams, besides being tenoned into the shut face of the front pillar, it is lapped the whole width of the front pillar on the outside, and mitred to the front edge of the pillar. The body, when framed up and panelled, is cleaned off, the bottom having been fitted in, but not fixed, with the doors fastened in and

shut in their proper position, but not hung with hinges. It is then sent to the coach-fitter or finisher—a branch unknown to the English coach-maker—who is half body-maker and half viceman. He first proceeds to fix the edge plates, which are generally of iron, steel being seldom used, but wider and stouter than those used in England. They are fixed to the body entirely with screws; though, in cases of rare exceptions, Landaus have bolts used in the doorway of the rocker. The usual stout screws of French make are used in fixing the edge plates. The concealed hinges are then let into the standing pillars by these fitters, and the doors are hung, locks and dovetails let in, and the doors brass-plated. The body is then returned to the body-maker, who fixes the bottom in, and the body is completed. In one shop, a Brougham had the roof canvassed over on the inside between the hoopsticks, the joints only being blocked —a capital plan, no doubt, for preventing the roof from splitting and better than the common practice of merely blocking. In almost every case, the top back and top quarter panels are glued on, no panel-pins being used. The panels are secured by a cramp gallows, till the glue is hard; the back panels of all the French bodies are closely blocked all over, in a manner known to English coach-makers as brick-blocking. In Landau bodies, the whole of the furniture and joints are fitted and fixed by the fitter, and the slats of the head are all dovetailed into the hoopsticks; a thin, light plate, either flat or half round, is then fixed in each corner as a corner-plate, and, in some cases, extends right along the inside of both slats and along the hoopstick in one piece. The plan of glueing the body-framing together, as practised by the French coach-makers, may answer for the dry climate of France, but not so with the humid atmosphere of England; and even in the French work, the repairs seen in the carriage factories, such as the replacing

of bootsides, quarter panels, short bottom sides, as well as the joints of an Albert-shaped Park Phaeton, in the bare wood and iron, that I saw exhibited in the French department of the Exhibition, and the spliced joints in several Victoria bottom-sides, are sufficient evidence that glue is not equal to the English practice of whiteleading in fixing the framing together. As an instance of the accuracy to which the French body-makers work, in one shop a Landau head was being fitted up entirely independently of the lower part of the body: the pillar-hinges had been fixed on the lower extremities of the pillar tops, the pillar tops being held in position by stretchers screwed along the side and across, and the head rested on the knuckles of the pillar-hinges, upon a board kept for the purpose, having a true and level surface. At another manufactory, where carriage-bodies are built for the trade, I had a better opportunity of judging the advantages of the French Rule, the whole of the work being constructed upon that principle. It certainly admits of a greater distribution of labour than the English system, as one man can be employed getting the corner pillars out, and another man the short bottom sides or front pillars; in fact, the work can be divided among a number of men, as each piece can be got out separate from any other portion, from the rough up to and including boxing-out and grooving, dispensing with the necessity of framing the body up together, rounding it in, and marking the moulding before boxing-out; the body is, therefore, put together only once, and then fixed for good.

Notwithstanding these seemingly apparent advantages, on enquiring of the men themselves, I found that, including the time occupied by the fitter in, fixing edge plates, hanging, and plating-doors, &c., the French body-maker takes a considerably longer time to make a like piece of work than the

English body-maker would; and that, though the rate of wages paid to the English workman is a little higher than that paid to the Frenchman, it is more than compensated to the English carriage manufacturer in the saving of time; and, though it must be admitted we are at present behind the French builders in general design and finish of carriages, good and sound carriage-bodies, as far as regards cost of labour, can be produced as cheaply, if not more cheaply, in London than in Paris.

GEORGE FLEMING BUDD,
COACH BODY MAKER.

66, *Blackstock Road,*
Finsbury Park, Holloway, N.

REPORT

ON

COACH WHEELS AND UNDER CARRIAGES.

BY

WILLIAM THOMPSON CASSON,

Malvern.

WHEELS AND UNDER CARRIAGES.

ALTHOUGH the exhibit of carriages from England stands second to that of France in number, the exhibit of no country is put in a more out of the way place. Whilst the French exhibit is near the main entrance, and almost the first object that meets the eye of the visitor, approached by handsome archways, with the background of the carriages hung with beautiful carpets, in contrast to this, the English exhibit, more than double that of any other country, is placed in what is no more than a shed, the roof leaking rain in wet, and pitch in hot weather.

Notwithstanding this drawback, the English carriage-builders have made a fine display of what may be called ordinary, everyday English work; and the finish and appearance of the carriages are equal to those from Paris, which had only to be run from the workshop into the Exhibition.

In comparing these two leading exhibits, the English carriages show a greater variety of form than the French. In the English carriages, such things as steps, and their mode of fixing, wheel iron-heads, body loops, and fore carriages, vary according to the taste of the builder. In France, as a rule, there is a striking uniformity in such things; the fore-carriages of one builder are counterparts of those of another. The steps are nearly all of the same pattern, and the styles of the wheel iron-heads may be counted on one's fingers.

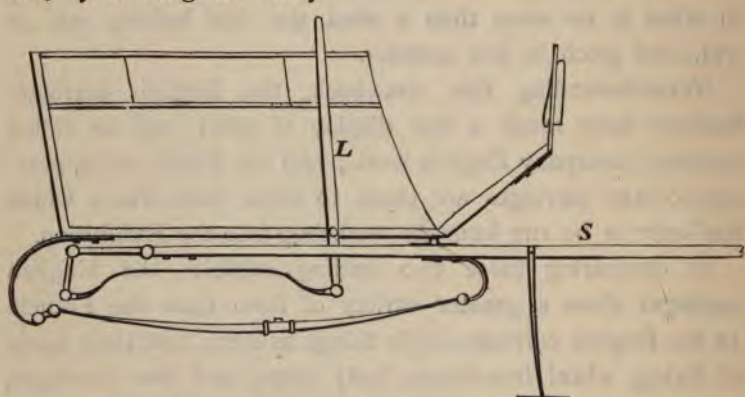
The reason of this uniformity seems to be, that in France

there are several large firms who manufacture these articles wholesale, and keep large stocks of everything required in the manufacture of a carriage.

These firms not only supply France with manufactured carriage goods, but also seem to export them to most parts of Europe, as carriages from various countries have axles and springs from the firm of Lemoine, of Paris.

DOG CARTS, &c.—*England* shows the largest number of Gigs and Dog Carts. Out of a total of twenty-nine, there are twenty-three from England. In these carriages, England is far ahead; but, in some cases, we may have erred as much in the extreme of lightness as other countries have in that of weight and clumsiness.

France shows four, and in some of these there are ingenious arrangements for applying a brake, and at the same time taking the weight off the horse in going down hill, by shifting the body.



Another good arrangement is shown for raising the shafts at their points, to suit different heights of horses; but it has this disadvantage, that, whilst raising or lowering, it does not lengthen or shorten the shafts. Its object is also to take the weight off the horse's back in going down hill. By moving the lever L backward or forward, the back

end of the shaft S is thrown either up or down, and the centre of gravity is thereby displaced. The price of this Dog Cart is £40.

Lance-wood shafts are usually obtained from England, and cost about 36 francs (30s.) per pair. The quality of some of the shafts shown is very poor, and the workmanship bestowed on them is in keeping with their quality.

The two-wheeled vans, shown by France, are well hung on four springs; but without a load they seem sufficiently heavy for one horse. They are not to be compared with those shown from England.

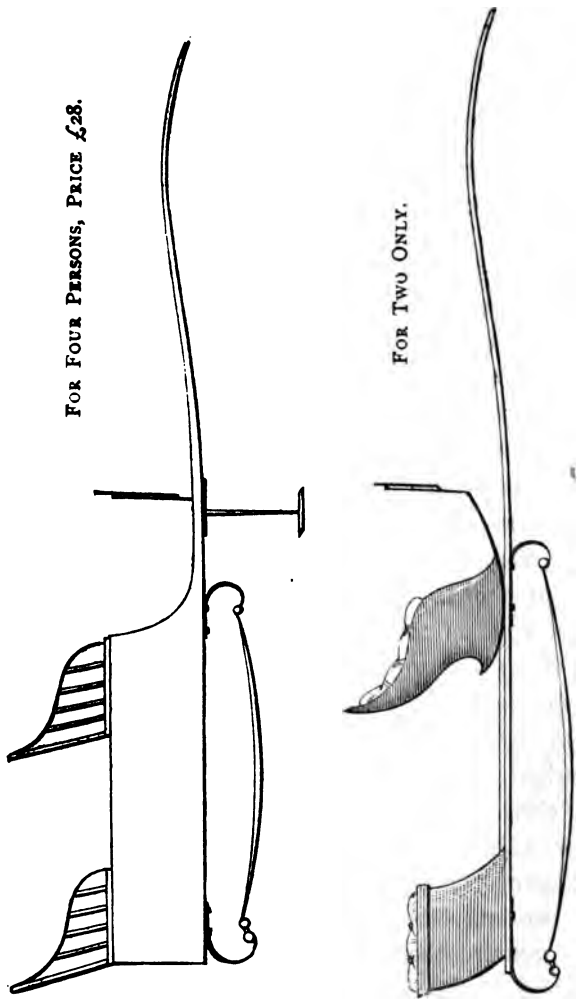
America and *Belgium* both exhibit a Dog Cart. The workmanship seems sound and good; but neither of them approaches the style of an English Two-wheeled Dog Cart.

Italy.—Amongst the curiosities on two wheels, a vehicle from Bologna may be mentioned. The bottom of its body is a rope net, covered with stout matting. The shafts are very short, and seem to finish about six inches in front of the back-band stop, and are quite straight. The axle appears to be a large piece of timber.

Finland.—The two-wheeled vehicles shown from Finland may also be reckoned as curiosities. The shafts are built into the body, and strongly plated. The steps are quite upright, and the lower one is the smaller. The seats are for either two or four persons, but with no arrangement for adjusting the balance according to the number of passengers. (*See wood-cut, next page.*)

Whatever may be said respecting these carriages, we can only admire the spirit and enterprise of the Finland carriage-builder, in sending specimens from that far-off and small carriage-using country. The price of one is £28, which is a very moderate figure for the amount of work in it, and the resources of the country it was built in.

Norway. — In two-wheeled work, Norway still clings to the Cariole, which, if we may judge by the frequency



FINLAND CARRIAGES.

of its being exhibited, forms part and parcel of the Norwegian character. The five Carioles shown are

apparently precisely the same as those shown in Philadelphia in 1876. In the same Exhibition was also shown one built in 1625, which had precisely the same seat arrangements as the Carioles have at present.

The front seat holds only one person, and the body is in the form of a shell, or Laplander's sledge. The back seat is simply an oval board without rail. This arrangement of seats which has existed so long, is the best adapted for the country.[1]

French Wheel-barrows.—A passing glance may be taken, upon entering the French Court, of that humble but useful vehicle, the wheel-barrow. Some are shown by France, of good, sound, rough workmanship, and at a small price, about 8s. 9d. and 11s. each complete. This is a very small sum; and to

[1] Usually only one passenger occupies the narrow seat over the wheels, which are generally large-sized. The hind portion has a fixture for carrying baggage, which in some cases is used

make them at such a price, they must be made in large quantities and by machinery.[1]

Bicycles have made great advances since 1867. At that time they were being introduced by France. The wheels were heavy wooden ones, and low, with not much difference in the size of the front and hind ones. The general arrangement was something similar to that of the present time. The great improvements in them have been made by English manufacturers.

FRENCH AGRICULTURAL WAGONS. — The carriages for agricultural purposes shown by the French are clumsy things, being built regardless of weight. They generally have good and well-made iron-work; but the wood-work, especially the wheels, is often very poor. The large firms that make carriage iron-work also make fittings for the wagons, hence the superiority of the iron-work. The shafts of one in particular were noticeable, being large

as a seat. . . . They are generally accompanied by boys who run or walk alongside, jumping up occasionally to rest themselves. . . The precipices and rocks both above and below the narrow road are frightful to contemplate.—*E. M. Stratton*, "*The World on Wheels*," *New York*, 1873. A valuable historical work on Carriages, and worthy a place in every library.—*Editor.*

[1] Children's carriages are not quite forgotten; though small in size and numbers, some are got up with great taste; these are nearly all for use out of doors. There is, however, one for use in the nursery; it consists of a light iron frame, mounted on four rollers encased in india-rubber; on which there is a light, movable table or platform of polished wood; at one end, an opening is cut to the size of a child's body, and a well-stuffed belt is fixed in the opening. This table is provided with a jointed action, similar to that of an ordinary parallel ruler, and by the aid of a crank a lever acts on a little movable seat. A child, about the age to learn to walk, is placed in the opening at the back of the table (this should be carefully done, to prevent the child being alarmed), the belt is fastened, a girdle and shoulder-straps of ribbon are put on, to prevent it turning round, and the child is started on its walking exercise. As soon as it feels the least inclination to rest, its own weight causes the table to be depressed, and this action also brings the seat into position; the table holds the child's toys; in a few minutes the child is rested, and can rise and renew its efforts to walk, the little seat being withdrawn by the act of rising.—*G. N. Hooper's Survey*, *Paris Exhibition*, 1878.

pieces of oak timber 7 in. wide by 11 in. deep. Such vehicles are not to be compared with those of the same class shown in the English Section of agricultural implements, whether we consider the workmanship or their adaptability of purpose.

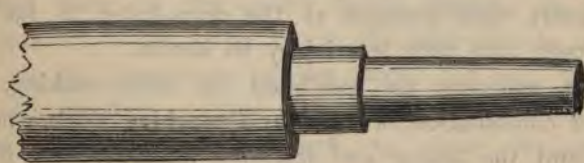
FRENCH WHEELS.—The cost of heavy wheels, with tires, for carts or wagons, such as we use in England, together with axle, is about £8 18s. per pair for heavy, and £5 15s. for a lighter kind.

The wheels upon French vehicles, whether heavy wagons, public cabs, or a gentleman's pleasure carriage, are of inferior quality to those of either England or America. The material does not seem to be so good as ours, and the workmanship is much inferior. Their stocks are made of elm, the spokes of acacia or oak, and the felloes elm or ash.

On several carriages, unpainted, the bad work of the wheels was very apparent, such as the joints of the felloes being open where they ought to have been close, and *vice versâ*. The wheels on many carriages also showed signs of being made of unseasoned timber.

Some wheels have rims instead of felloes, and the joints directly over the spokes. The intention of this seems to be to keep up the joint; but it is questionable whether the advantage gained is not more than lost by the disadvantage of having always two spokes that are more or less loose in the rims.

Another builder makes the tenons of his spokes of two sizes, and bores the rims to correspond. Thus, the spoke at the shoulder will have a tenon, say, seven-eighths of an inch in diameter, and the nearer point half an inch. These are on wheels, that have round tenons on the spokes.



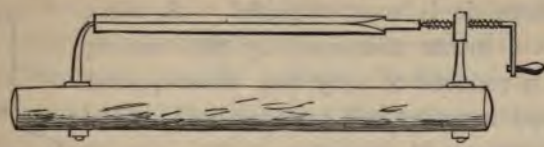
An occasional carriage is shown with spokes going into a socket, and the sockets bolted to an iron rim or tire. These are generally used where the wheel has to be fitted with an india-rubber tire. Russia also shows one fitted in like manner. In this there are many advantages; but the expense in the first instance must be a drawback to its introduction. It is, I believe, the invention of M. Neuss, of Berlin, and first introduced about 1860.

In France, it seems a general practice to put a square tenon on the spoke, and consequently a square mortise in the felloe, which is a disadvantage. The additional strength is questionable, and the labour much greater than with a round tenon. The little American machine for tenoning round tenons would be no use in France; but where round tenons are used, it effects a great saving in labour.

TOOLS.—The mode of making wheels by hand in Paris is somewhat similar to that in England, only the Parisian wheelwright uses a pair of stocks, similar to the stocks of a lathe, to hold his spokes whilst he dresses them. These are in use amongst wheelers in the North of England, but are rarely met with in London. The London wheeler holds his rough spoke between his chest and a sloping piece of wood placed against the bench; and when he uses his draw-knife, the pressure is against his chest. The Northern and Parisian wheelers fix their spoke in the stocks, at a convenient height above the bench, and can thus exert their strength at the draw-knife to far better advantage, and with less injury to health.

Some machines are exhibited for wheel-making, which form a combination of hand and machine work, where the saws and the boring and tenoning apparatus are fixed to

an ordinary bench. The price seems reasonable, and many advantages are claimed for it over the hand system,



both in point of time and accuracy of workmanship. What can be done in sixteen hours by the old system can be done in five by the machine. The price is about £21. The best of these are, however, inferior to the machines for wheel-making made and sold in America.

Whilst watching wheelers at work in one of the best shops in Paris, the conclusion I arrived at was, that there was much want of system about the work. The man driving his spokes placed his stock on the floor endwise, and, after giving his spoke tenons a little warming, proceeded to drive them. In addition to having his back always bent, to a certain extent he had to chase his wheel about the shop after each blow. The hammer was very heavy, and he drove them tight, as the stock was brow-hooped. If a spoke had to be forced either backward or forward, the wheeler's feet were used to hold the wheel while he pulled it with a stick.

An English wheeler, with a good wheel-pit, could easily have done the work in half the time, and with half the labour.

A great defect in the French wheels consists in the method whereby they fit the spokes in the stocks. In making the shoulder of the spoke tenon, the wheelers do not cut it to fit the curvature of the stock, but cut it in the opposite direction. This necessitates a piece being cut out of the bridge of the stock, to allow the spoke to

fit. This cutting is not less than one-eighth of an inch, and takes away timber from the stock exactly at the place where it is most required. A stock of, say, six inches diameter, by this cutting process, is reduced to only five three-quarter inches, and becomes still weaker, because the grain of the wood is broken.

In some shops, the tire is put on the felloes in the rough, that is, the felloes are dressed down to the width of tire after it is on. This is rather a roundabout way, but it has this advantage, that the tire never need be disturbed after it once gets a seat on the felloe.

French wheel-timber is not equal to English or American; some large builders have immense stocks of American rims. The firm of Hoopes and Darlington, Westchester, U. S., have secured a large share of the trade in wheel material to France. France is, something like ourselves, running short of suitable timber for wheels.

Some French builders prefer acacia to oak for spokes, as it stands jarring and compression better. Others say they prefer it, because it is cheaper, oak suitable for the purpose being scarce. The price of a rough acacia spoke in Paris is about fourpence, carriage and duties paid.

In short, whatever country we may have to compete with, as regards wheels, we may rest assured that at present France is not that country. Wheels seem to be too matter-of-fact an article for a Frenchman to expend his energy upon. Had they been articles requiring artistic embellishments, then the chances are that French wheels would have occupied the foremost place.

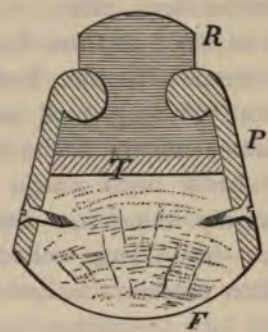
ENGLISH WHEELS.—The wheels upon the English carriages are nearly all of the old style, that is, plain mortised stocks, spokes, and rims or felloes. A Landau is shown by Mr. Mulliner, Liverpool, with a very effective mode of fixing rubber tires on the wheels. Rubber tires are not easily managed; but this system fixes them securely, and it is asserted they will outlast any set of ordinary tires.

R.—RUBBER TIRE.

T.—IRON TIRE.

P.—PLATES TO FIX RUBBER.

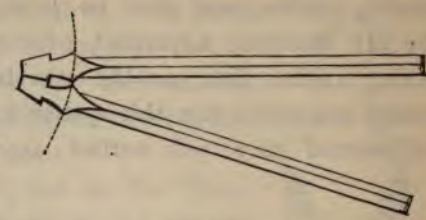
F.—FELLOE.



Their great expense, in the first instance, precludes their general use, the price being thirty guineas. This rubber tire would, however, do all that is claimed by the rubber-cushioned axle, and more, as it would dispense with rubber brake-blocks; and the loosening of parts of the carriage by jarring would be avoided.

Messrs. Wadsworth, of Halifax, show, in the English section, a patent wheel, the spokes not being driven as ordinarily, but forced broadside-wise into dove-tailed recesses in the cast-iron stock, and afterwards secured by face-plates, screwed on back and front. The only way the spoke can be got out is by the way it was got in, as it is impossible to draw it out of its place, which is an inconvenience. The spoke at the stock is not weakened by being cut down to form a tenon.

The felloes seem fixed with a joint over each spoke, and a large screw driven into the ends of the spoke. The invention may have the advantage of making a stronger wheel at the stock; but it loses what it thus gains by being weaker at the felloe. A screw driven into a piece of wood endwise has generally little or no hold.



The Messrs. Hopton, London, also exhibit wheels and wheel stuff of very good quality.

Belgium—exhibits in the Main Building a few well-made heavy wheels, with acacia spokes and ash felloes. In workmanship these are superior to those of France.

Russia—has a large collection of wheels, placed in a sort of pavilion outside the Exhibition. These have pieces of wood let into the felloe, instead of the usual dowel. For what purpose this exhibit of wheels, in the bare wood, is placed outside, exposed to the weather, does not seem clear, unless to show how far it is possible for timber to crack without actually coming to pieces.

Canada—shows some good neat wheels, both common and patent; also a few carriages, built on the American style, the most noticeable being those of M. J. De Wolfe, Halifax, N. S. The American style of carriage has usually little lock room, owing to the perch stopping the wheel. The Ladies' Phaeton, by the same builder, combines the lightness of American work with the ease and turning capacity of the English carriage.

AMERICAN WHEELS. — Of all the wheels, those of America stand foremost. The New Haven Company shows some of excellent quality, both of the common style and what is known as Sarven's patent, which is a

combination of wood and iron at the stock. The spokes are tenoned with a small tenon; but the shoulders are made wedge-shape, so that when the spokes are driven, each one forms, as it were, the key-stone of an arch. Two iron flanges are then forced on the stock, back and front, and rivetted together, the spoke being held firmly between. It makes a firm, strong wheel, but looks clumsy, and adds considerably to the cost.

Messrs. Hoopes Bros. and Darlington, U. S., have a fine show of wheels, that cannot be excelled by any country in the world. Whilst many of the French wheels are showing signs of shrinking on account of the hot weather, even with tires on, every wheel in this exhibit has its joints as firm and close as when it left the works, which shows the care taken by this firm in the seasoning of timber. If wheels can stand the heat of an ordinary shed, without showing signs of shrinking, the seasoning may be considered perfect, and the work well put together.

The timber used for rims on American wheels is the hickory, which has some tendency to bruise out at the tenons, and split. To remedy this, a screw is often inserted on each side of the tenon; it is put in from the back, but does not come quite through; the head is broken off, and the screw filed level with the wood.

The shape of the spokes shown by this firm (Hoopes & Co.), if not more correct than the ordinary American spoke, is, at least, more pleasing to the eyes of Englishmen. Most of those from America are dressed very light in the neck, which seems a bad proportion, although the Americans, doubtlessly, have reasons for so doing. This lightness of the wheel gives a certain amount of spring enabling it to almost turn inside out, and yet come back to its old position.

Another patent wheel is shown by this firm, which has a wooden stock with an iron band, forced on by hydraulic pressure, having in it the required number of mortises. These mortises are continued a little into the wood of the stock, but not cut through. The spokes have each a little wedge inserted in the end when driven, and the driving of the spoke "home" forces the wedge into the spoke, making it very firm. The stock has, moreover, wood running throughout its length at the centre, which gives it additional strength. A pair of these wheels are now running in England, although they have already run 25,000 miles in this country.

The timber of American stocks is either the white rock elm or gum wood, and great care is taken in the selection and seasoning. As a rule, they are superior in quality to our English stocks, and infinitely superior to the French. Only a few feet at the butt of the tree can be used for the best stocks; and care is taken to keep them from splitting in the seasoning process. The Messrs. Hoopes Bros. and Darlington bore a hole through each rough block, and thickly coat the ends with resin.

The shape of the American stocks is very carefully considered, and all the patent wheels have their peculiarity in the stock or hub.

For real hard work, nothing can equal the American hickory; yet it is very liable to go tainted, if not in use. The very best can be worked down to almost any lightness. A wheel shown by the above firm is strong enough to carry one man, and is so light that it can be lifted on the little finger, although with tire, and complete in every respect.

The dimensions of such a wheel may be—in height 4 ft. 6 in.; stocks, $3\frac{1}{4}$ diameter by 6 ft. long; spokes $\frac{7}{8}$ in. at mortise, and sixteen in number, the rims about $\frac{7}{8}$ square;

and the tire ⅛ in. thick. The whole trap would weigh about 50 or 60 lbs., and carry double its weight. The diameter of some stocks on four-wheel work is as low as 2⅝ inches.

RUBBER-CUSHIONED AXLES.—In the Exhibition at Philadelphia in 1876, two different inventions were shown, both protected by letters-patent, for introducing bosses or cushions of india-rubber between the box and the stock. One of these inventions has been industriously pushed in the European market, and some of the leading carriages in the Exhibition are fitted with this invention, named "The Rubber-Cushioned Axle." That there is some merit in the invention, the names of the builders who have availed themselves of it sufficiently attest. Messrs. Brewster, of New York, and Million, Guiet and Cie., Paris, and other leading builders, have given it their countenance; but time is required to prove its usefulness and value.

The cost is not excessive, the idea seems reasonable, and the advantages claimed for it are numerous, viz., greater comfort for the rider, less wear and tear, and a saving of 20 per cent. in draught power. The disadvantages are, that it cannot be applied to any ordinary carriage without having axle-boxes made on purpose; and to box the wheel properly, a special machine is required, as the stock must be bored quite true in the first instance, as wedging afterwards is not admissible. This invention also requires a larger stock; and even in that case, the stock is so cut away that only a shell is left. If an ordinary wheel were to be so cut away in boxing, it would be considered spoiled.

There is also a French invention, to effect the same purpose, which has some good points about it, the rubber being round the axle, between it and the spring. It has the disadvantage of not having the solidity given by an axle with solid spring-fasteners.

In passing from American wheels to American fore-carriages, the same forethought and ingenuity are noticeable as is displayed in their manufacture of wheels. The American Trotting Sulky, for one person, and weighing about half a hundredweight, is a piece of work where every part has been carefully studied, to secure the maximum of strength with the minimum of material. Some of these vehicles weigh as low as 45 lbs.

The Drag by Brewster and Co., New York, is a very fine piece of work, and is considered by many to be the best Drag exhibited. On the heavy work of this firm, the outline of the bodies and style of the carriages partake of a combination of the English and French. This is the largest exhibit from any one firm; but thirteen carriages, stowed away in a corner, prevent their being seen to advantage. The fine finish of these carriages is very striking; they are painted on the new American system, and finished with American varnish.

This firm, I may observe, pays great attention to the finish of its carriages; the varnishing room at New York is quite a model, and the greatest care is taken to exclude dust.

The fore-carriages of this exhibit are, with the exception of the purely American carriages, much superior in style to the ordinary American fore-carriage on heavy work. The Americans distinguish fore-carriages as perch and platform. The perch-carriages, on their light Buggies, are marvels of strength, neatness, and durability; but the usual platform-carriage is full of complications, and unmeaning quirks and corners. They are not to be compared with an English carriage, or those made in France by Hannoyer, or Lemoine. The Drag shown by this firm weighs 22½ cwt., and the Racing Sulky 54 lbs.

AMERICAN CARRIAGES.—The objections to the American style of perch-carriages are, first, that the perch and body

obstruct the lock, and so prevent the carriage turning in reasonable space; second, that, owing to the style of fixing the shafts direct to the axle, they soon rattle, and, as the shafts cannot be turned up, they require as much room in a coach-house as a second carriage.

The axles of American carriages in general appeared inordinately long, with the great defect of having spring flaps, not solid, but loose clips. The object of the extra length of axle is, to get the wheels to "track." In England we seldom hear of track, whilst in America it is of such importance, that carriages built in one State may be all but useless in the next, owing to difference in "track," that is, not fitting into the cart-ruts of the roads, or in the track of the street railways. They vary from 4 ft. 8½ in. in New York, to 5 ft. 2½ in. in Philadelphia. Brewster, and Co., of New York, do not attend to track, as is shown by their exhibits.

American builders of carriages have a system that we might take a hint from: that is, saying, "here is a carriage, weighing so many pounds, and will carry so many pounds with safety." Carriages of 400 lbs. weight are made to carry 1,000 lbs. in many instances.

PUBLIC CARRIAGES. — *France.* — Respecting the public carriages in Paris, much might be usefully learnt by coach-builders in London. As a strike had taken place amongst the cabmen at the time of our visit, we were prevented seeing the best Cabs in the streets.

On our arrival at Paris, we took the first Cab we came to, which was a striking contrast to the four-wheeled Cabs in London. It was well painted externally, and the trimming was very neat and serviceable. The doors had spring-locks, working excellently, and the inevitable rattle had

been reduced to a minimum. That this was not an exceptional Cab, our visit to the Company's works (Petites Voitures) fully showed to us. There we saw hundreds of others, in various stages of manufacture, equally as good as this one.

This Company makes axles, springs, bolts, and almost entirely builds the carriages from the raw material. An interchangeable system is in use, which facilitates the work and effects a great saving to the Company annually, even in the way that repairs are executed.

When a body leaves the body-makers, it is put into a strong wooden frame, to test if it be of the required shape. The bottom, boot, and hind end must all touch the frame before the body is considered perfect.

The smith fits his iron-work to a cast-iron template, and all the holes are drilled uniformly: thus, if a fore-carriage were taken off one cab, it would fit another without a hole being eased.

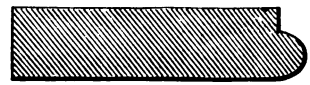
The springs, axles, and wheels are all on the same principle. A cab with a broken wheel or spring can be fitted with another in a few minutes.

The Company used to make fore-carriages with wood beds; but these have given place to others, all of iron, as the wood proved more expensive to make, and did not last so long.

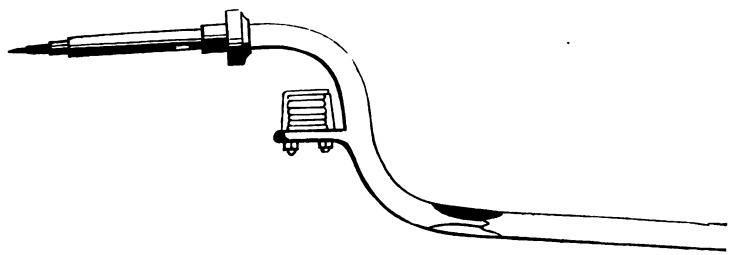
The Company has introduced iron panels upon the Broughams, but the effect produced is bad; however well they may be put on, and painted with some dozen coats of filling up, they look full of inequalities.

The wheels upon these cabs do not stand so well as they ought. The stocks are brow-hooped; but still they fail at the stock first, simply because the bridge of the stock-mortises has been cut away, as previously mentioned. One good contrivance on these wheels is a bead, projecting from

the edge of the tire, which keeps the felloes from being spoiled by running against the curb.

SECTION OF TIRE. 

The axles are all "Collinge's Patent," with solid spring flaps, and have some novel features about them. Here is an axle from an omnibus:



All material used by this Company seems of the best quality. In passing through the trimming shop, there were workmen ripping open old cushions, and pitching the hair into an immense pile. We examined it, and found it to be the best curled hair, grey, and of a quality such as would have brought in England two shillings per pound.

A new method of fixing the trimming has been introduced by using a few screws, by the unscrewing of which the whole trimming comes away from the body: then the cab can be stowed away until the winter, without injury to the trimming.

A great defect in their Broughams is, the way they make up a framed boot. The boot is contracted by a side curve, and panelled with iron. After a few weeks' running, the weak places begin to show. One cab that had been out

six months looked as though it had been out as many years; but some of their streets are very bad: that in front of their works is particularly so, and, therefore, a severe test for a new carriage.

In one of their immense store-rooms, we saw a number of four-wheeled cabs of the London fashion, only far better finished.

The four carriages shown by this Company in the Exhibition, are neat and well finished with English varnish (Nobles and Hoare's). So well are they got up, that even a professional carriage-builder must look twice before he observes them to be public vehicles. This Company manufactures fifteen kinds of carriages.

Of the omnibuses and tram cars much cannot be said; they are big, heavy things, and are enough load for the horses to draw when empty. Their brakes are all screw-brakes; the blocks are iron, and of great length. This prevents them wearing away quickly, and would be very effective upon pleasure carriages, if it were not for their long, heavy appearance. Beneath the foot-board is a horn, blown by the driver's foot.

Lyons.—Amongst the fore-carriages shown by the French, the most striking is one from Lyons: it is a remarkable piece of ironwork, not as an improvement on the existing styles, but as a piece of clever workmanship. It is under a C-spring Barouche; the perch and beds are all solid iron, very cleverly forged, and beautifully beaded and carved. Even the axles are forged and beaded to correspond; but the effect is thus lost. The wheels have rims of ash, all in one piece; the joint is over a spoke, and has a plate on each side fixed by a rivet. If I ask, "How is the carriage to be mended after an accident?"—this difficulty will only be equalled by the question, "How is a spoke to be got into the wheels, if one of them should break?"

There is one carriage shown by France that may be said to be a thing of the past in England: it is a travelling carriage with a budget in front, and a large rumble for servants behind, the drivers being postilions. It has a remarkable swept pole, to clear the rider's leg. Although a very rare carriage in England, it still figures on the price lists of French manufacturers.

Another pole is shown, plated top and bottom with thin plates, having oval holes that play on the screw on the pole head; and to show its strength, it is weighted at the point with forty kilogrammes (about 85 lbs.). The amount of deflection appears far more than it ought to be, as 85 lbs. ought not to bend an ordinary pole very much. In France a good, stout ash pole can be bought, partly dressed, for about 6s. 4d.

As a rule, the French fore-carriages are well made and proportioned, but, perhaps, are a little heavier than the English.

The beading and carving are very neat and suitable. It is rare to find corners left so sharp as not to retain the paint, or which would cut one's hand in washing. France, in this respect, is far before us. If a neat piece of carving

is found upon a carriage, it is sure to belong to France. The wood-carving and iron-carving have something about them that it is worth trying to imitate; and some of the American builders who exhibit might take home useful hints in this respect.

In our visit to some of the workshops, we saw that the carriages in the Exhibition were, to a great extent, not got up for show, as others in course of construction were to be as carefully finished.

Usually, the Carriage is put up in the rough, and tried with the weight in. After any required alteration, it is finished off with the greatest care, and a fore-carriage finished off ready to paint, is a picture worth looking at. Messrs. Million, Guiet, and Cie., give their Carriages a coat of "Permanent Wood Filling," which takes some days in drying; but it effectually closes all the pores, and still remains elastic. This is the first step taken in painting a carriage on the American system of Messrs. Valentine and Co., New York.

Pony Phaeton.—A very ingenious method of making a dash seat on a Pony Phaeton is shown by M. Levacher, Rouen. It can be either a plain dash or a dash and seat; the change can be effected in a moment; but so many joints and hinges must soon rattle loose. It is fully illustrated in the *Guide du Carrossier*. A much simpler and, perhaps, better system is that by M. Kelliner, where the seat folds under the heels of the other sitters.

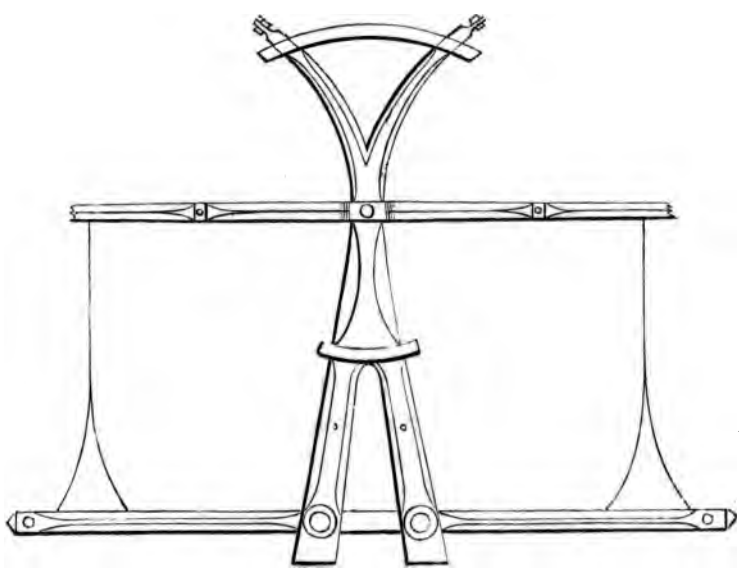
The iron-work of M. Kelliner's Carriages is very good, and beautifully finished. A four-wheeled Hansom that he exhibits is sold to go to Liverpool. A large black and gold Victoria, on C-springs, is a splendid piece of work, and a very fine design. It has a style about it that stamps it as one of the first Carriages shown. Its price is 6,000 francs, about £240. It has front and hind servants' seats.

Drags.—The French Drags are, so far as general outline goes, close copies of the English, but are highly finished. The owner must be in anxiety every time the carriage is used, lest such fine work should get spoiled.

Italy.—The carriages from Italy contain some good points. The C-spring-work of Signor Sala, of Milan, to all outward appearance, might be set down as being from London.

A fine piece of forging is shown on a Brougham, by Signor Mainette, Milan. The wheel-plate, tongue-piece, front and back body-stays, bed-plates, and horn-bar are all forged solid. A duplicate forging is shown in the rough, just as it left the hammer, and is as neat a piece of carriage forging as could be produced in any country. A first-class English smith judged it to be a casting, and could not believe otherwise.

As a set-off to so fine a piece of work, the axles have



only common loose flap-fasteners, and the springs are fixed by bolts. The price of this Brougham is £110, and the trimming is reversible. One carriage from Milan shows a pair of close futchells[1] made out of one piece of wood.

Italy also shows, amongst malleable ironwork, some good castings for carriage-fittings, such as pole ends, &c.

Belgium—has a good show of axles, the collets being made of iron. In Belgian carriages, as in other countries adjacent to France, the Parisian style is prominent. They have no fixed track. Some Broughams have eleven inches difference in front and hind axles. Some of these carriages have axles that seem heavier than what is usually required in England, and some have wheels with half-round tires.

One carriage from Antwerp had a system for introducing india-rubber between the carriage and body.

Vienna.—The work from Vienna is sound and strong, and cheap, considering the amount of work. A side-light Landau, for a pair, well made, and strong, is offered at £120, at which rate labour must be cheap in Vienna. The tires of this carriage are fixed by large screws.

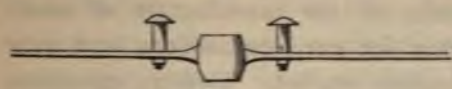
A Four-wheeled Dog Cart, by Ambruster, is noticeable for real wicker panels, very neatly done. The fore-carriage is good and plain. The price is £46.

An Occasional Carriage is shown without a perch bolt; but this finds neither approval nor favour. A French manufacturer has a patent for such a kind of fore-carriage. The price is about £2 8s. for the parts ready for shutting up: the lubricant is oil.

A varnished T-Cart is shown on one of these carriages; but the dub ends are very sharp, and look bad. The

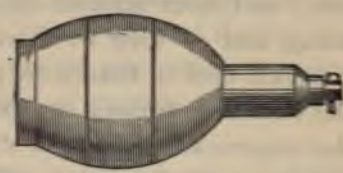
[1] This is very commonly the case in Switzerland.—*Editor.*

splinter-bar is of iron, with the pole-socket neatly forged in. The wheels are all of ash, very cleanly finished.



These carriages seem all good work, and the price is so low, that little or no export trade from England could be looked for in that quarter.

Russia—when it departs from Russian styles, adopts those of Paris. Russian stocks of wheels are the shape of a bottle, and usually made of oak.



The wheels of their carriages are low, and the tires heavy. The shafts are round baulks of timber, and are fixed to the axle close behind the wheel. A large eye is on the shaft end, which goes on a place turned up on the axle. Even the shafts of a light American Trotting Sulky, on four wheels, were made in this heavy style, whilst otherwise the whole carriage had the appearance of being imported from America intact.

Interlaken.—A new patent Fore-Carriage from Interlaken is shown made wholly of iron. The bed comes under the spring, and the wheel iron-head on the top. The price is about £4. The same builder, Urfer, has a Phaeton with no wood used in its construction. The wheels are in the bicycle style, and the bottom is of iron lattice-work. Considering its carrying capacity, its weight is heavy, being 319 lbs.

Luxembourg.—A Landau and Victoria, from Luxembourg, are noticeable for having brakes working on the back stock hoops, a mistaken idea; to be equally effective as a brake on the tire, as much more pressure must be applied, as the diameter of the tire exceeds that of the

stock hoop. This increased pressure will also tend to loosen the stock hoop, and to increase the wear and tear.

France has lately taken to the manufacture of small tools or machines suitable for carriage-builders, and even sends them into the English market. Drilling machines, tire-benders, and upsetters are made wonderfully cheap, and do their work well. French drilling machines, after being used in England for some time, have been known to fetch in open market considerably more than the original cost; and, from personal experience, I can say the tools are cheap, and do their work well.

Brakes used in France are principally screw-brakes, and all the necessary fittings can be bought at a very small cost. An improved substance is still wanted for brake-blocks that will be at once noiseless, effective, and cheap. Indiarubber fulfils two of these conditions, but its cost is excessive.

A Landau by Henderson, Glasgow, is fitted with rubber brake-blocks; but in everyday use they would soon be worn away. I have known a rubber brake-block an inch thick to be worn away in three days; and if we consider the price of india-rubber, this, in a month, would be a serious item of expense.

In conclusion, to sum up the results of my observations made at the Exhibitions of Paris, 1867, Philadelphia, 1876, and Paris, 1878, I think the French carriages are now a great improvement on those of 1867. One day, an old carriage passed me in Paris, which brought back to my mind those of 1867. At present there is a more judicious application of material, and their carriages are much lighter than they were formerly. The outlines of the bodies are varied, and have a pleasing air and style, which are doubtlessly the result of a cultivated taste.

England makes as good carriages as ever, perhaps better; but we no longer occupy the position of being

alone pre-eminent in carriage-building. However, most of the improvements in Landau heads have been made by English manufacturers. In Paris, 1867, the only self-acting head shown was the one exhibited by Rock, of Hastings. Since then, many improvements have been made, and in this exhibition of 1878 the simplest and most effective head is another by the same firm, now Messrs. Rock and Hawkins, of Hastings.

America, for novel ideas, light workmanship, and, above all, for wheels, comes first in the list of carriage-building countries. Her resources are immense, her timber unequalled, the ingenuity of her people proverbial, and her builders adapt their ordinary style of carriage work to the wants of all countries.

Whenever I visited what may be called representative carriage establishments in America, I inspected their stocks of timber, and was struck with the excellent quality of the stuff, and the care taken in its seasoning. In this respect, America cannot be equalled.

France, in this respect, (if we leave out wheel stuff) is our equal, if not our superior. The stock of timber kept by M. Million, Guiet, and Cie., is of fine quality, and the wood-work kept by merchants who supply carriage-parts to the trade is very good; and France grows her own wood viz., walnut, for the panels of carriages.

In England, ash planks of certain kinds and thickness now fetch almost fabulous prices. England formerly had timber in plenty and to spare; but every year it is growing scarcer, and now we have barely enough to supply our wants.

It appears, from statistics lately published, that France has 16·79 per cent. of her land in forest, while we have only 5 per cent. Holland has 7·10, and Germany 26. If France, with more than three times our quantity of timber, finds it

necessary to import it from America, how will it fare with us some years hence?[1]

An important subject of inquiry is—Are our workmen so well educated for their trade as they are on the Continent? When we glance through the advertisements of schools, we do not find one in England professing to give a technical education. The result is, that the market for clerks is overstocked, whilst the supply of men specially educated for their trade is not equal to the demand.

France has schools both in Paris and the provinces, where boys are taught the principles and practice of their trades. Pupils are at the same time taught to work with their hands, and work exhibited by some lads, such as forging and fitting, would put to shame many an English journeyman, boys just in their teens doing all the forgings and fittings for a three horse-power steam engine.

Holland.—Other countries, such as Holland, have similar schools, and a few particulars of one may be taken as a specimen. All the pupils are workmen's children; the fees are about 8s. per annum; if the parents cannot afford to pay, the fee is paid for them. The age for instruction is from twelve to fifteen. After they are finished, the school managers get them a place, and have them under their eye for five years more. The wages received by these pupils are considerably more than those earned by ordinary boys. Twenty-one teachers are allotted to two hundred boys; and the boys are taught to sketch everything before they begin to make it. These are in other trades than coach-making; and the bringing such an amount of intelligence by our neighbours to bear upon their handicrafts

[1] There cannot be a doubt that the world produces other woods than oak, ash, and hiccory, which are well suited for wheel making. The Turkish oak, much planted in England of late years, is valueless for wheels. The old English oak grown in the county of Sussex was invaluable for that purpose, but its supply is exhausted.—*Editor.*

must tell to our disadvantage, if we continue to neglect the technical education of our youthful mechanics.

Paris.—The coach-makers in Paris have now two schools for the instruction of boys and men in the principles of coach-making; but, unfortunately, upon paying them a visit, we found it was their vacation. One school was formed so lately as in 1878, under the patronage of the Syndical Chamber of the Coach-makers, &c., of the Department of the Seine; and, what is striking to an Englishman, the Society was approved of by a decree of the Prefect of the Police.[1]

The School is open from October to April, inclusive, every evening from 8 to 10; lectures are given on Mondays.

The classes are divided into two sections—first, the smiths, vicemen, carriage-makers, &c.; and second, the body-makers. The course required for attendance extends over three years, during which those under instruction are taught linear drawing, practical geometry, the nature of timbers, iron and steel, the construction of a fore-carriage, hanging of carriages, passage of the wheels, equilibrium of loads, &c., &c.

The fees are 1s. 8d. per month; apprentices are admitted free during their first year.

There are in this institution three teachers for the body-making and three to teach carriage-making.

In Paris there is a teacher of carriage-drawing, who has attained a world-wide reputation. M. A. Dupont's work and pupils are to be found in every capital in Europe, and his skill is recognized even across the Atlantic. His work, and that of M. Brice Thomas, another draughtsman, have done much to advance French ideas and to make them so wide-spread. Several English carriage agents

[1] All such establishments are under police surveillance in France.—*Editor.*

joined the class of M. Dupont, during their stay in Paris; and French designs are in a fair way of being more disseminated amongst us.

I paid M. Dupont's place a visit, and was very courteously received. The pupils, who were at work on their drawings, left them, and very kindly unrolled drawing after drawing for inspection.

The principal room is large enough to contain on the walls about half a dozen large drawing-boards, each capable of holding a sheet of paper sufficient for the drawing of a full-sized omnibus.

A room at the back was full of patterns and models of almost every part of a carriage, and it also contained a small bench and tools, whereon those are made. All seemed to be arranged systematically, for when I asked to be shown a drawing of a Salisbury boot, it was forthcoming, and pinned up in a very few seconds. This drawing may be taken as the culminating point of the teaching of geometry, known as the "French Rule." The back of a Salisbury boot is composed of a curved framework of slats or batons, and covered with leather. To get these batons into their proper shape, they are put in when the timber is partly green, bent somewhere near their intended shape, being sprung in and dressed off afterwards.

M. Dupont's teaching enables a student to get out every slat or baton at the bench; and when put into its place, the curves will all merge into each other without any trouble, even though each baton be given to a different student to make. That this is no easy matter to work out, may be inferred, when each baton is a combination of four totally distinct and different curves, none of which is circular. A combination of two curves is sometimes difficult enough to deal with; but M. Dupont's teaching extends to the assimilation of four.

This may be considered the acme of carriage-drawing, and only attained by close study. The drawings mostly made are full-sized drawings, and these M. Dupont supplies to the trade in five different classes, called A, B, C, D, and E. Each differs in price, according to finish. Several of them are found in the leading carriage shops in London. Mr. G. A. Thrupp's lectures at the Society of Arts were illustrated by certain of M. Dupont's drawings.

The prices of some of these drawings are appended on a subsequent page, giving the charges in France for various manufactured parts of carriages.

What have we to show in England against all this? The Worshipful Company of Coach-makers of London have for some years offered prizes for drawing, as an inducement for carriage artisans to practice it; and, in 1875, Mr. G. N. Hooper, at that time Master of the Company, began by offering a special prize for one branch of carriage-building, which good example has been continued by the Worshipful Company for other branches of the manufacture.

London has also a drawing-school for carriage workmen, lately instituted, which has done good in the short time it has been at work; and, should it fail, it will be through the apathy of working coach-makers, and not through lack of energy on the part of its promoters.

In the provinces there is no encouragement of the sort, except that the competitions of the Worshipful Company are open to them as well as to London, and that certain endeavours to promote technical education are made by the Society of Arts. As to the error of the idea, that giving a man too much learning in his trade makes him dissatisfied, and spoils him as a workman, I may mention a pupil of the Builders' School—for there are several schools for that trade throughout the country—who, although

lame, worked at the bench, and was earning higher wages than some 60 or 80 workmen, solely through the instruction he had received, which instruction enabled him to hold his own against ordinary workmen. It also enabled him to point out errors in the teachings and work of other men, admittedly superior workmen in joinery.

This, in joinery, could easily have a parallel in coach-making, if proper schools were instituted for the teaching of lads entering the trade.

To remedy this state of things would not be very difficult, if the Privy Council on Education were to take up the matter. If France can do so, why should not we also, by means of our elementary schools, in which poetry and Shakespeare should give way to knowledge, more suitable for intended artisans, such as mechanical drawing?—and the Government grant be extended to drawing applied to the arts? Education in music may lead to the music-hall and penny theatre, but not so mechanical or geometrical drawing. These things are now left to workmen themselves; or else the generosity of private individuals prompts them to do what really ought to be done by the State.

As to the position of the working classes in Paris compared with those in London, there is not much difference in regard to position or pay. An intelligent coach-painter in the works of the Compagnie de Petites Voitures, who had worked in London, was questioned by us upon a number of subjects connected with the position of the workmen in the two countries. He indignantly denied that Frenchmen do not work as hard for their money as Englishmen; that he preferred Paris to London, because the purchasing value of money among his class is greater there than in London; that he considered the painting in London is better and

more substantial than that in Paris, Parisian painting being partly got up for show; that having been in London, he now declines to work on Sunday; and that the chief amusement of a French workman is a dance. Wages[1] are about six and a half francs (5s. 5d.) per day for painters. It may be mentioned, that as this man did picking out, and fine lining, his pay would be more. The above were some of the opinions expressed by a French workman, as the result of his own experience.

Regarding Sunday work, there can be no doubt that a man who has been working hard all the week requires rest on Sunday.

There is one thing, working-men in England could advantageously copy from those in France; that is, their sobriety. If the scenes often enacted in England on Sunday in public-houses were seen in Paris, long and loud would be the complaint by Englishmen against the way in which Parisians spend Sunday.

The English section of the Exhibition was closed on the Sundays, and their carriages were covered up—nobody being there but a man on guard.

Messrs. Brewster and Co., of New York, also covered up their carriages on Sunday, like worthy descendants of the old pilgrim-father (Brewster) who sailed from England very many years ago. We could not but feel pleased that the English old spirit still exists elsewhere.

The way that note-taking in the Exhibition was tolerated, was a great improvement upon that of 1867; at that time, if a note-book was produced, every word that was

[1] The hours of labour in France are longer than in England; and Saturday half-holidays are unknown among French carriage workmen. They receive their wages, in some cases, once in four weeks, in others once in two weeks; whereas the English carriage workmen are paid weekly.—*G. N. Hooper's Survey, Paris Exhibition*, 1878.

written was watched, and liable to be enquired about. Any difficulty we met with on that account, was easily overcome by merely showing our credentials, and uttering the magic word, "Delegate."

The following are the prices of some of the materials charged to the trade in Paris. The material is of very fine quality, and the workmanship excellent. The names of the principal manufacturers are also given :—

PRICES OF MATERIAL, &c.

SPRING STEEL.

	£	s.	d.
The price of Spring Steel in Paris of ordinary quality is about ... ...per ton	27	3	0
Best quality ... ... „	42	5	0

IRON.

Tires—Best quality ... ...per ton	17	18	0
Bars—Dash Iron ... ... „	24	12	0

SPRINGS.

Elliptic Springs, bright turned bolts, best quality per lb.	0	0	7
Very light ditto ... ... about „	0	1	2
Very heavy common ... ... „ „	0	0	4
Set for Park Phaeton	2	8	0
„ Single Brougham	2	14	0
„ Double ditto	3	4	0
„ One Horse Landau	3	8	0
„ Pair Horse	3	18	0

FORE CARRIAGES.

Park Phaeton, wood beds, iron futchells	3	0	0
Mail Phaeton, wood beds, iron futchells, double wheel plate, wheel iron stay continued right round at back	4	4	0
Double Brougham	4	8	0
Single Landau	4	8	0
Pair Horse Landau, chop futchells, and splinter bar ...	6	12	0

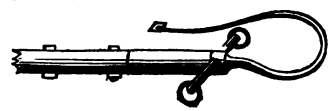
FORE CARRIAGES.

Including Springs, Axles, Wheels, Clips, Bolts.	£	s.	d.
My Lord	16	0	0
Victoria	16	2	6
Mail Phaeton	16	16	0
Landau	19	0	0
Landau for pair	22	0	0
Omnibus, six inside	25	6	6

AXLES.

Set of Axles for a Park Phaeton, to carry three persons	2	14	0
Victoria	3	4	0
My Lord	3	4	0
Mail Phaeton	3	4	0
Brougham, single	3	4	0
Landau, single	3	12	0
„ double, or pair	4	0	0

POLES.

Pole, without hook (see page 69.)	0	17	4
Polished Hook for ditto 	0	18	1
Ordinary straight, not fully dressed	0	6	4
With polished hook, dressed, and all complete	2	1	0

SUNDRY MATERIALS.

Wheel Iron Heads	pair	0	3	9
Pump Handles, with side spring flap, carved ends	„	2	0	0
Door Locks, Spring, average about		0	4	2
Screw with Nut, fastenings, handle and connecting rod end to nut, for screw brake work		0	6	8

FULL-SIZED DRAWINGS.

Landau, side light	from	£1	8	0	to	5	0	0
Landau, do. C-spring	„	3	4	0	to	6	0	0

FULL-SIZED DRAWINGS—continued.

		£	s.	d.		£	s.	d.
Omnibus	from	1	0	0	to	4	4	0
Brougham...	„	0	15	10	to	4	4	0
Brougham, C-spring	„	2	6	0	to	5	4	0
Drag	„	3	4	0	to	6	0	0
Dog Cart	„	0	11	10	to	2	16	0

The leading makers to the trade are

LEMOINE, *Paris.*
HANNOYER „
BUREL „
ANTHONI „
} For Ironwork.

BOIRE, BROS., *Paris*, for Carving.
CALLOT, *Paris*, for Heraldry, "Transferable."
DELASCELLE, „ Fittings for Broughams.
LEDOUX, Plater, etc.
M. BRICE THOMAS, Scale Drawings.
M. A. DUPONT, Full Size Drawings.

Lastly, I beg to thank the British Commissioners for their kindness to us, and for the assistance given to us by Sir P. Cunliffe Owen, C.B. We experienced his kindness in innumerable little ways, that made our visit one of pleasure as well as business.

I would also thank Mr. Cowlrick for his valuable services as interpreter. Had it not been for him, a great part of the details of our trade would have been to us a sealed book. He was selected for the duty by Sir P. C. Owen, and a better man we could not have had.

Last and not least, I would cordially thank the donor of the money for our visit, the worthy Master of the Worshipful Company of Coachmakers. His generosity enabled us to visit the Exhibition, and also secured to us the valuable services rendered to us by the British Commission and the Society of Arts.

I would say of the remainder of our party, Mr. W. Heywood, of Huntingdon; Mr. G. F. Budd, of London; Mr. Farr, of Salisbury; and Mr. W. Simpson, of London; that for ability and agreeableness, four more suitable persons could not have been selected. Not a discord marred our visit. Each one did his best for himself and for his neighbour; and nothing was experienced but kindness and pleasantness throughout our visit. If fortune ever throw us together again, we shall have the pleasure of cheerfully interchanging many a pleasant reminiscence of our visit to Paris in 1878.

WM. THOMPSON CASSON.

Malvern, Worcestershire.

REPORT

ON

COACH SMITHING AND SPRING MAKING.

BY

WILLIAM HEYWOOD,

Huntingdon.

COACH SMITHING AND SPRING MAKING.

ENTERING the Exhibition from Porte Rapp, a visitor at once arrives at the gorgeous apartment in which the French carriages are placed. Raised on platforms, which, to a certain extent, keeps them from the dust caused by continual traffic, protected by covered ropes the entire length of the avenues, the display is at once striking and effective.[1]

Coming to a closer examination of the carriages, particularly as regards the iron-work, one or two facts are apparent to the visitor, be he a practical workman or not —either that the French and other Continental smiths are first-rate copyists, or the greater part of the iron-work is supplied by one firm; or that the French have, by careful study, improved so much in coach-building, that, whilst their carriages are remarkably heavy in dead-weight, the lines throughout harmonize to so great an

[1] The show rooms of some of the modern Paris carriage factories have received much attention as to suitability and finish. It is evident that in these improvements the question of showing finished carriages to the best advantage has been well considered. The flooring is composed of an ornamental chocolate-coloured cement, containing large grains or lumps of white marble, and the whole is ground down to an even surface and polished. Its advantage over a wooden floor is, that it can be kept clean with very little labour, and does not hold or create dust, to dim the brilliancy of the varnished surfaces of the carriages.—G. N. Hooper's *Survey, Paris Exhibition*, 1878.

extent, that the fact of weight is, to the eye, taken away by the beautiful combination of symmetry and proportion.

The visitor will see, as the result of a careful examination of the exhibits of foreign carriages, and the iron manufactories connected with the coach trade, that foreign coach-builders, and particularly the French, have many advantages over English builders; inasmuch that all their wants seem to be studied and met by those who have undertaken to supply them with goods in every department of the trade.

No house in England has yet produced such a large quantity of manufactured finished work, either in axles, springs of all designs, joints, wheel-irons, locks, carriage-furniture, and all the fittings in iron required by a coach-builder, as the firm of Lemoine.

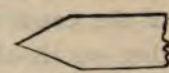
This firm, by the careful supervision and management of 350 men, combined with engines of 200-horse power, turns out iron-work complete for 18,000 carriages yearly.

This representative house, which is evidently the leading one in France, and has been in existence in its present complete form about four years, gave us every facility for inspecting its works and gaining information.

The springs made by this firm are hand-forged, with the exception of slotting, punching, and drawing off the plates. The spring-eyes are so forged as to show equal substance of steel round the bolt. The cup-heads are hand-forged, and, by means of set hammers, made to suit the various sizes of springs. The interior of the head is finished so completely in one heat, as to require no vicing or fitting. In England, as a rule, the spring-eyes show uneven and unequal substance round the bolt, and the interior of the cup-head is roughly fullered in the springs, when made in private shops.

The French spring-maker is not allowed to use his

judgment or taste as to the number of plates in the spring; but the result of a well-tested spring having been ascertained, it is entered in a book, showing the length of every plate in the rough and finished states, the distance of stud-holes, the lengths of each plate, sizes of bolts, description of heads and eyes, the finish of the ends of the plates, and whether the edges of the steel are to be rounded or *veed*.



The spring-heads, when forged, are passed to a man who fixes them in a small slide lathe, which shapes the head to the bolt exact, and in less time than a viceman could fit them up.

The springs, when fitted, are tested under a beam with a sliding weight, to increase or decrease the power and dead pressure. In the system of French spring-making, I consider their failure is "testing." They test by the slow and gradual pressure, increased until the opposite portions of the spring meet, and not by the sudden pressure given by the hydraulic or steam engine. A plate that is defective will stand easy, gradual pressure, but will not stand the sudden strain to which carriage-springs, *more* than any other, are liable. The whole of the centres of the bed-plates, perch-bolts, wheel iron-heads of all patterns, and iron case-hardened nuts for axles, are forged with one blow of the steam-hammer; and so perfect a success have they attained, that all the fittings are interchangeable. The springs are made to such a nicety that, by giving the number of the spring and plate, any damaged plate can be replaced, when applied for, without the spring being required.

The axles in French carriages are, as a rule, stronger by a quarter or three-eighths of an inch than those used in the same description of English carriages.

In England, the best axles are made from fagotted iron, but in France from the solid bar. The iron of the

best brands, and such as is used by the best houses, is procured at Vierzon, in France, and from Segrau and Despres, at Athis Mons, Seine et Oise, France.

Whilst to all appearance this metal is a fair, passable iron, clear in grain and fibre, I do not consider it equal to our Stenson's Northampton iron; and a partner in one of the coach firms we visited in Paris was much annoyed that we should doubt his statement, and say it was not charcoal iron.

The whole of the axles are forged under the steam-hammer out of bars, sufficiently large to leave a stump, when beds are forged, to make the French square flap.

English flaps[1] are welded on, whether caulked or butter-fly; but this is obviated in France, and a stronger and cleaner job is produced in one heat under the hammer, which, by the application of the proper tool, forms at once a perfect square flap. Whilst a strong, sound job is thus made, when fixed on the spring, it is, nevertheless, open to the great objection of forming a receptacle for dirt. The whole of the ironwork is stamped into the required forms by one blow of the hammer. The tools are hinged together to ensure greater accuracy, as well as handiness to work.

The wearing parts of the various portions of the iron-work, after being turned, are case-hardened; and, as they pick up the separate pieces indiscriminately, they will all

[1] A method has been adopted at Paris to allow of a slight lateral motion, and it is said that a long trial has proved its efficiency. The hind springs are clipped to iron flaps, as usual, but the flaps are not in the solid with the axle, but attached by two spurs to the back and front of the axle, and fastened by bolts through the axle and spurs; the bottom of the flap is a quarter of an inch or so above the top of the axle, and the space is filled in with some soft material. When the vehicle turns a corner, or one wheel falls into a rut, the above arrangement allows the springs to roll slightly on one side, and prevents a violent jolt being felt. The axle-tree should be slightly stronger at the parts where the bolts pass through, if exposed to bad roads.—G. A. Thrupp. Communicated to the *Coach-builders' Gazette*, 1878.

fit. The fore-carriages, supplied by this firm (Lemoine) to the trade, made and sold for every description of carriage, are really fine pieces of work; and those produced by English coach ironmongers, compared with these, are not creditable.

The prices at which the fore-carriages are produced, together with all the finished fittings, are such that English builders will gain an advantage in buying ready-made, in preference to keeping a large staff of men and stock, which means, at the same time, a large and a dead stock of timber and other materials. The wheel iron-heads, where plates and other specimens of stamped work are shown, are finely finished and tooled. Whilst light in appearance, they combine great strength with good taste. The finish and fitting of the wheel iron-heads, locks, stump-joints, and all the varied iron fittings, as well as the different styles of spring-plate patterns, show that much time and study are devoted to the manufacture and finish of the articles. The greater number of the fore-carriages in the Exhibition, with the exception of the English, are of one particular style. The wheel-irons are both connected and united in the solid, in fact, form one piece, thus gaining great strength over the separate wheel-irons generally used in England. Whilst the French have got this improvement, they lose strength by not fitting a felloe-piece under the hind part of the wheel-plate, thus allowing the whole to come on the sway-bar.

In previous Exhibitions, the French had adopted the half-wheel plate, with deep pipe sockets in front of the beds, but now the rule is the full circular plate, as used in England; and, in the majority of cases, the perch-bolt is made with a T flap on the top, so as to allow the bolt being made a fixture, thus preventing any rust or rattle.

The pump-handle eyes, ends of stays, and solid perches, afford the workman scope and opportunity for displaying an amount of taste which cannot either be found or allowed in the workshops of this country. Also, all these ends can be procured ready for welding on at very cheap rates.

In the coach factories, I noticed, in the *stores particularly*, as well as in the various lofts, that great pains are taken to provide a place for everything, and to see that everything is in its place, and to keep the whole remarkably clean; the extra labour and trouble being well repaid in the handiness of every article when required.

The iron is racked, and labelled with tickets stating size and substance; and the whole of the items, from an axle or spring down to a pin, are arranged in the best possible manner to be seen and got at.

Each smith is kept, as far as it is possible, at one distinct piece of work, whether it be spring making, tiring, bolt making, ironing bodies, or underworks throughout; and, where the work is uniform, it is the way to make the most of everything. In smith-work, as far as regards the fitting and forging of the ironwork, I do not consider the French smith superior to the English; but our smiths and vicemen require special training before they can take the body and fore-carriage, iron it up, bore and fit on all the iron-work, let in and fix hinges of doors, fix door-plate, head-joints; in fact, fix all the iron-work of the body in shape of fittings, and let in and fix the locks and handles.

It is a notorious fact that no English builder has succeeded, up to the present time, in making carriage doors fitted with slam-locks[1], to shut so sound as the

[1] With improved spring locks, such as those made by Schollhorn, of New Haven, U.S.A., slightly modified and strengthened, passengers on railways could easily open and close the doors for themselves. If, in addition, a small

French ones. The French cabs, &c., are all fitted with simple and effective slam-locks,[1] which are easily taken to pieces, cleaned, and repaired, and which only cost, when new, about 5s. 6d. per pair.

The whole of the Landau head-sticks, as well as bent sticks for Barouche or Phaeton heads, are plated from end to end on edge, which makes the head very strong, with half the substance of timber.

In the application of folding-steps to 'Buses and Four-in-hand Drags, the French stand pre-eminent. The steps themselves are finely made, are well concealed, yet easy of application to the special purpose for which they are needed.

In the steps of Broughams, Landaus, and Victorias, in particular, the elegance shown in the manufacture and finish denotes that some one makes such perfection a study; and the new iron heel-guards to many of the steps are a decided improvement.

The Paris General Omnibus Company, and the Paris

pad of india-rubber were placed at the top and bottom of each door at the point of contact, a terrible infliction on the nerves of weak persons would be abolished on the Metropolitan Railway in London, where the noise of the door-slamming drives away many a nervous passenger.—G. N. Hooper's *Survey, Paris Exhibition*, 1878.

[1] The great defect of a slam-lock has been that the frequent shock in closing the door forces the outer side of the bolt against the wall of the lock, and after a short time, the bolt no longer enters its mortise freely, making the door liable to open as the vehicle moves along the street. If the spring of a lock is made of a greater strength, to counterbalance the wear and tear, then it becomes difficult to open the door. Russell and Erwin, of the United States, have introduced a roller below the bolt, which touches the striking plate on the pillar before the bolt touches it, and having a rolling motion, it takes away the jar and shock from the bolt and allows it to slip easily, and almost noiselessly, into its mortise. The roller is at least a quarter of an inch thick. It would be a further advantage to combine with a slam-lock a small spiral-spring both at the top and bottom of the body where the door takes its bearings. We might keep a carriage door thus free from rattle as perfectly as with the common lock.—G. A. Thrupp. Communicated to the *Carriage Builders' Gazette*, 1878.

General Carriage Company, both manufacture on their premises the whole of the iron fittings required for their work, from the smallest bolt to the largest axle. The bolts are hand-made and hand-screwed. These Companies pride themselves that everything they make is interchangeable, and properly fitted to its fellow, a point very necessary to prevent waste and delay.

The viceman has an iron frame or template, the exact size and form of the boot, bottom, and brackets. Upon this template he makes up and fits his top-carriages by the score, with stays all shut up and bolted on. Taking it from the template, he bores it on to the body at once, and produces a complete piece of work, requiring no fitting.

In the manufacture of Brakes, I consider the French are behind the English; without exception they rely upon the screw brake, and, although they are powerful and sure, they cannot be as rapid in action as the English lever brake. The French always apply metal blocks to their brakes. The circular-wheel, applied on the end of the screw-shaft, seems to be part and parcel of every carriage in France. I consider, after a careful examination, that the iron-work on the exhibits of Kellner, Bellvalette Frères, Million Guiet, Binder Aîné, and Quiny and Co. (the wood and iron Victoria only), as well as a Barouche from Lyons, are the finest specimens of work in the French department of the Exhibition, in style and manipulation of ironwork.

The finest small carriage exhibited in the French department, for ingenuity and fitness for work, and for its workmanship, is a Phaeton, exhibited by Levacher, of Rouen.

A first-class French smith earns, on an average, nine francs per day—say, 7s. 6d.—and a superior viceman,

or fitter, who fits the doors and hangs the carriages, seven francs per day—say, 5s. 10d. The hours of work are from six to six, all the year round, seven days to the week (so abhorrent to English views), and only one hour daily for meals. This shows that the French have, by means of the low wages which they pay, and their long hours of work, great advantages in cheapness of production, and can undersell the English maker in every market in the world, in iron-work for carriages. The exhibits of Lemoine, and Antony and Burel, in the French departments, showing specimens of their manufactory for fore-carriages,[1] axles, springs, and iron-work, are such as will stand critical examination, and will beat the English in the general market. The goods are mostly sold at from 5 to 50 per cent. less than similar articles can be bought in England.

The Victoria heads of Bail and Kellner are fitted with springs, to raise or lower them from the inside automatically; and, by means of a lever attached to the hind corner, and corner props, which work unitedly in two bosses on the elbows, the joints are locked or unlocked at pleasure, a feature not known in English Victorias. The hind corner props, as a rule, are fixed on this plan, so that the springs and joints act in unison, without any undue strain.

In the exhibits shown by Belgium, Austria, Russia, and Italy, although a marked improvement can be seen on

[1] England still retains her reputation for the best axles. Not only was the system of Collinge an English one, but her iron, fuel, and processes of fitting and hardening the arms and boxes are superior to those of other countries, a great advantage at this time, when so many private carriages are conveyed from place to place by railway. The conditions under which they are carried, causes the axles and boxes, unless good, to stick fast, and prevents the carriage being used till the troublesome process of detaching them has been accomplished by competent workmen accustomed to such mishaps.—G. N. Hooper's *Survey, Paris Exhibition*, 1878.

former exhibits, there is nothing special to report, further than that the greater part of the fittings and fore-carriages are in the French style, and probably are imported into those countries direct from France.

The Landau exhibited by Allesandro Locato, Italy, shows a fine combination of springs, and is certainly the finest European exhibit outside of the French department.

The Norwegians show a speciality of their own fashion, namely, the national Cariole.

From the style and finish of the carriages shown from the other states of Europe, it is very evident that the French are before the English in exporting carriage materials to the various European markets.

The American exhibits, by Brewster and Co., of New York, are fine specimens of iron-work, either light or heavy; and I consider the light Trotting Wagon, or Sulky, the lightest specimen of fine iron-work in the Exhibition; and the Drag the most perfectly finished one shown. The space allotted to these exhibits is too small, and makes it almost impossible to obtain a fair view of them. In other respects, the iron-work is the nearest copy of the English style of any of the exhibits shown. The other American exhibits show a common class of Buggies and Wagons suitable for their several uses.

The Canadians are represented by Mr. Wolfe, of Nova Scotia, and his exhibits show fine work. This gentleman shows and adopts, on nearly all his build, the American cast-steel single-plate spring, and, he personally assured me, with great success as to wear and tear.

The exhibit of Stevenson and Elliot, in the Australian department, is a fine piece of work, and speaks well for the enterprise of the firm.

In the English department, it is impossible to par-

ticularize without mentioning names, as the exhibits are not numbered.

The finest exhibit of small, light, strong carriages is by Windover. The lines are fine, striking, well proportioned, and well finished. The finest specimens of work in large carriages are by Cockshoot, Peters, McNaught and Smith, Henderson, Aldebert, Holmes, and Mulliner. The workmanship shown by some of the other exhibitors is not so good as they could produce.

The Whitworth steel is used by a few English exhibitors, and mild steel in the under-works; but, taking the English exhibits as a whole, they represent fairly the productions of the various houses.

The perch of Cockshoot and McNaught, and Smiths' carriages, are fine specimens of forging, and the fittings are not surpassed by any in the English Department. I note one or two builders have made their exhibits rather conspicuous in painting; and, whilst their work generally is good, they could not, if they had tried, have spoiled it more effectually than they have done by ugly proportions and bad lines.

After a careful examination of the various exhibits at Paris, as well as of the workshops of that city, I am sure that English workmen, as long as they stand by and fight for trades-unionism—which, in most cases, means, equal wages to good and indifferent men, short hours, as well as completing work as slowly as possible (thus increasing the cost of the manufacture)—will effectually drive trade to foreign markets, and prevent English builders from competing successfully with their foreign rivals.

Our trade will be not only tempted, but compelled to go abroad, to make or buy important parts of carriages in the completed manufactured article, such, for example, as those

made in France, which can be delivered in England of better quality and style, and at considerably less cost, than what can at the present time be made in England.

This importation will mean less stock, less hands, &c., until, in time, we may see English smiths and vicemen doing the work of carriage-makers, as in France, and endeavouring to recover a trade that ought never to have been lost to them.

If the English workmen mean to maintain their position—which, despite the exhibits of the French, they do still hold—the present men must throw their energy into their work, and further men be induced to study and to train themselves to see, and at once pick up, improvements; in short, to apply adaptability to purpose and work. And, with a view to induce this great end, in my opinion, all honour is due to the Worshipful Company of Coach Builders and Coach Harness Makers of London, for the advantages they have offered annually to the trade, and by whom I have had the honour to be commissioned to give a true and faithful report on the Coach-smithing and Spring-making of Carriages, in the present International Exhibition in Paris.

WILLIAM HEYWOOD.

Huntingdon, September 2, 1878.

REPORT

ON

COACH TRIMMING WORK.

BY

WILLIAM FARR,

Salisbury.

COACH TRIMMING.

In furnishing your Worshipful Company with a report of my visit to the Exhibition at Paris, it becomes my duty to acknowledge the gratitude we (Reporters) owe to the Company's Worshipful Master, to whose munificence we are indebted for our visit. While not failing to recognize our obligations to those who initiated the movement, we with pride observe that it was H.R.H. the lamented late Prince Consort's great mind and indomitable energy that conceived and inaugurated these grand projects of International Exhibitions; and that we are indebted to his son, H.R.H. the Prince of Wales, for the recommendation of making use of the services of artisan reporters. And we who have in such character visited Paris, can record the great interest taken to secure our personal comfort, and the facilities that were necessary to ensure the success of our visit.

To the British Commissioners and the Society of Arts, we are indebted for the satisfactory arrangements made in Paris, while the efforts of Sir Cunliffe Owen, C.B., were beyond praise. He was everybody's friend, and always accessible. To these gentlemen, and the other officials on whom our comfort and success depended, I would convey my best thanks. This duty accomplished, I proceed to the more important matter connected with the object of our visit.

We were enabled, through such aids and assistance, to

visit many large and important works in Paris; and to assist us, the Commissioners were pleased to grant your Company's reporters the valuable services of Mr. T. F. Cowlrick as interpreter, whose aid was of inestimable value. He attended us during nearly all our visits in Paris, which included the manufactories of the Paris General Omnibus Co., the Paris General Cab Co., Messrs. Guyot, Huyard and Co., and Messrs. Hirard and Norman, carriage-body makers, the carriage-building works of Messrs. Million Guiet and Co., Kellner, Binder, Steinbach, and others; the business places of M. Brice Thomas and M. A. Dupont, carriage designers, &c.; and the manufactory of axles, springs, carriages, and other coach ironmongery, of M. Lemoine, at Ivry. By such means, we were able to learn the resources upon which the French rely for the supply of the various requisites connected with the trade, and to understand more readily many things which subsequently came under our notice. By these visits, we also witnessed the great progress that the coach-building trade in France has made of late years, and were convinced that the works of the Exhibition were fair samples of the productions of the French workshop. We could not fail to notice the value of machinery used in most of the places we visited, and the great saving of time and labour to which it conduced. In some respects, we found the division of labour not quite similar to that in our own workshops; but, in many things, there was much to remind us of our own ways. The arrangements for facilitating the progress of work were, in some cases, most complete; whilst the good order observable everywhere left little to be desired.

Necessarily, a large portion of our time was spent in the Exhibition, and, as we gradually became acquainted with the exhibits of the various sections (England, France,

the United States, Austria, Russia, Italy, Belgium, and other countries), we could not but observe the great progress made in the art of coach-building. In several departments, there are specimens of the carriages characteristic of the nation to which they belong; but as many are, as far as they interest coach-builders, only reproductions of the fashions of the coach-building countries, they do not require special attention. In England, France, and the United States, we recognize the great carriage-producing countries; and amongst these the coach-builder will find objects worthy of his special attention.

Until recently, the English were the undisputed carriage-builders of the world, not only on account of the number of carriages built by them, but also on account of the skill displayed in their construction, thereby affording a pattern for the imitation of other nations. From this proud position the Exhibition arouses us; for not only do we find our excellence of workmanship equalled, but also in the matter of refinement of taste, we have to give the palm to France; and, while we admit that as to some of our modern fashions in carriage-building, we owe much of their design to the French, we also find that, instead of our influencing the French, we, in our turn, are being influenced by them. In this branch of industry, France may claim to have made the greatest relative progress, and it would not surprise us to learn that in no industry has France displayed greater energy and advancement than in coach-building.

THE EXHIBITS OF THE UNITED STATES. — *To the Americans* must be awarded the honour of contributing the largest collection from any one firm. Messrs. Brewster, of New York, show thirteen carriages, comprising a Park Drag, Landau, Brougham (pair horse), Lady's Brougham (single horse), Victoria (double suspension), Cabriolet, Lady's

Driving Phaeton, Two-Wheeler, T Cart, American Trotting Phaeton, Road Wagon, and Racing Sulky. These possess high claims to excellence, and, for skilled workmanship and brilliant finish, are not surpassed in the Exhibition. They are manufactured from the natural productions of America, are furnished with the rubber-cushioned axles, painted by Valentine's American system, and finished with Valentine's varnish. We must add, in justice to Valentine's system and varnish, that the exhibit of Messrs. Brewster does them infinite credit. This firm also shows a water-colour drawing of their extensive works in New York, together with a panel of Heraldry, evincing considerable skill.

Other carriages from America are worthy of notice, on account of the lightness of their construction and excellent workmanship.

There are also extensive displays of wheels and wheel-making materials, of unsurpassed excellence, claiming for America in that branch of industry undisputed pre-eminence.

FRANCE.—In looking at the French exhibits, we notice the extraordinary efforts made in their manufacture: nothing is left undone: the slightest details are carefully attended to. The French have certainly made the finest exhibition of carriages they can produce at the present time.

This cannot be said of the English carriages; they are the usual productions of the firms they represent, all good, but scarcely equal in brilliancy of finish to the occasion. Some firms, well known to be capable of the best work, have strangely erred through mistaken taste. Others show specimens of their well-known styles; but in exhibitions we expect something better. We notice firms represented for the first time, and their productions do them great credit. Others, of whom we expected great things, have failed to

show any of their carriages. There are others who always do their best, and they have not failed us, and we can still be proud of the English carriages they show ; yet the display of carriages in the English section does not represent the position we ought to claim. We are capable of producing at this time better carriages than the majority here shown.

THE ENGLISH CARRIAGES.—One of the notable carriages in this section is a Park Barouche on C-and-under springs, of very light construction and excellent proportions ; metal work forged out of Whitworth steel, with rubber-cushioned axles, the body painted of a rich, dark brown, mouldings black, relieved with a line of brown similar to body-colour ; trimmings in excellent keeping, of dark brown, hard-grained Morocco, with cloth and silk laces in fine harmony, while the leather work exhibited some splendid stitching, and mounted all black except the door-handles and caps. As it stands, with its well-rounded panelling, unbroken symmetry of form, the colour of painting set off by its interior lining, in almost perfect tone, it shows a repose, and an excellence of design and workmanship, scarcely equalled by any like carriage in the Exhibition. There are other excellent carriages in the English section ; but this one most approaches the French idea of carriage-building in its lowness of tone and complete repose, qualities which few other carriages in the English section can claim.

Among the other English carriages, there are some good side-light Landaus, of ingenious contrivance and first-class workmanship ; also Landaus with patent head-lifts, one of which is quite novel, the head joints being of steel, light enough to retain a sufficient amount of spring, and long enough to be slightly com passed by the fall of the head, which is much facilitated in reclosing by the straightening out of the joints

as the head recovers its closed form. Another Landau has rubber tires, to cut off vibration; another, of undisputed workmanship, with the exhibitor's patent for closing the head, is shown complete in wood and iron. Some serviceable and substantially-built Drags are also in the collection. A Dress Coach,[1] showing fine workmanship, is an attractive object in this section. The collection of Broughams in the usual styles of the several builders is exceedingly good. One single Brougham upon a perch and C-springs, the carriage of which is painted a kind of drab, relieved with black and chrome yellow, the body black, mouldings drab fine-lined yellow, nicely trimmed with black satin, with laces of black silk with yellow edging, attracts considerable attention from its really effective design and capital workmanship. There are also many light carriages, including Victoria, Stanhope and other Phaetons, Dog-carts, Gigs, and other two-wheel carriages, some of which show very ingenious contrivances that adapt them for various uses. The exhibits of this description of carriages are a feature in the English section, and show a marked superiority over those of a similar kind in the other sections. Park Phaetons, of which we possess in England some admirable specimens, are, perhaps, not so well represented as we might expect.

While admitting the excellence and skill shown in many of the English carriages, one must lament the lack of that fine taste in the arrangement of colour and conception of tone, which so much conduces to the excellence of effect in carriages as well as in other works,

[1] There are several noticeable variations between this and the Paris Exhibition of 1867; on that occasion there was a grand and luxurious state carriage for the reigning Sultan of Turkey. In the present, the only dress carriages are a chariot for Prince Upsilante, a Greek noble, and a coach of a former Lord Mayor of London.—*G. N. Hooper's Survey—Paris Exhibition*, 1878.

and without which the best mechanical skill works at considerable disadvantage.

THE FRENCH CARRIAGE SECTION.—Proceeding to inspect the French Department, which is admirably situated in the main building by the Porte Rapp, a route well frequented by carriage buyers, we cannot but notice the inferiority of the position allotted to the English carriages, which are exhibited on the opposite side of the building, reached by an obscure entrance, in a shed detached from the main building, sharing its occupation with machinery, &c., unsurrounded by the adornments which add so much to the attractiveness of the French exhibits, and unsupported by specimens from English makers of carriage material, which accessories tell with such striking effect in the French Section.

The French carriages are shown in four long continuous lines, on raised platforms, one on each side, two abreast down the centre, with a pathway on each side of the central platform, and protected by lines of crimson velvet covered ropes, on turned wooden pillars of convenient height and equidistant We found these carriages jealously guarded, and it required early rising and ingenuity to pass the ropes. Not even the name of Sir Cunliffe Owen, or the card of the Society of Arts, would avail to get us leave to open the door of a single carriage. Your reporters were, therefore, compelled to do the best they could to elude the watchfulness of the guardians. The walls of the department were tastefully hung with samples of carriage carpet and other material, and otherwise covered with large and important specimens of carriage fittings, coach ironmongery, &c.; and, in handsome cases, interspersed at intervals amongst the carriages, there were samples of laces, silks, cloths, Morocco, leathers, tools, and all sorts of articles which are connected with

the coach trade. The display in this section was fine, and formed, perhaps, the finest show of carriages that has ever been collected in an Exhibition, certainly possessing, amongst them, some of the highest development of the art of coach-building that the world has yet produced.

At both ends of the carriage section, samples of body-making, and carriages complete in wood and iron, were to be seen. Messrs. Guyot and Huyard show, at one end, among Landaus and other bodies, a nicely-contrived, side-light Landau, the side-lights folding inwards, and falling underneath the driver's seat, which was so hinged in front that it might lift to receive them. This Landau was purchased on English account, and other orders were given to the same firm. Messrs, Guyot and Co. show some fine body-making, the smith's work and fittings being equally good; for, in their fittings, locks, and other details, too often forgotten at home, the French are unsurpassed. At one end of the department, Messrs. Raquin of Montrichard, show light carriages in wood and iron, four-wheeled and two-wheeled Dog Carts for shooting and other purposes, light Phaetons with osier-work bodies, &c., worthy of a close examination, and which display good iron-work and fittings. One two-wheeled Cart is so contrived that, when the hind door is opened, the front seat is thrust forward into position, and the hind seat folds down on the seat rails for four persons; but, close the doors, and the back seat folds up, and forms a back rest, while the front returns to its proper balance for two riders. There is also a *spécialité* in this Cart for shortening or lengthening the shafts worthy of notice. This firm has already found English buyers.

Passing from the unfinished to the finished carriages, the first to arrest attention would be the selection of MM. Desouches, the chief of which is their Drag, a highly-finished piece of work, although mounted, perhaps, too high to please

English connoisseurs. It is splendidly painted and varnished; the panels are varnished wood, the grain of which is, perhaps, not quite as nature left it; the top quarter panels are painted black, under carriage and wheels yellow, trimmed throughout the inside and out with a light, slate-coloured grey kid (or lamb-skin), certainly a very novel and costly experiment, and with a front seat box contrived to form a receptacle for small parcels. How far the use of kid-skin, or leather, may be adapted for the exposed parts of carriages, is doubtful: its use in the interior has certainly a better effect than when strained over seat-boxes. Perfect in all its arrangements as this Drag may be, the eye, however, wanders from part to part, without experiencing such satisfaction as some others produce. A Brougham, the door of which is cut away to clear the hind wheel, is painted a colour between green and blue, relieved by lines of a lighter shade of similar colour. It is trimmed with velvet to match, upon which the light falls with beautiful effect, displaying the forms of quilting most attractively. It has a sofa back, with bottom quarters in one, the upper portion being trimmed plainly with cloth, or a material giving similar effect. The form of the upper portion, quarters, &c., is panelled out with a band of green velvet, edged with a lay of black braiding, finishing with scrolls at each corner; while inside of this, at equal distance, runs another lay of black braiding, finishing in ornamental corners, forming a square, at three angles of which smaller squares are formed. The inside fittings are equally attractive. The glass frames are of metal, covered with velvet similar to the lining; the front seat boxes and fall are of green cloth, with borders of Morocco, piped with black patent-leather. The whole effect of this Brougham was exceedingly good; it not only displayed fine mechanical skill, but also great ingenuity and fertility of resource in its various

arrangements, with a cultivation of taste that enabled the designer easily to arrange the novelties introduced, so that trimming and painting combined to stamp the work as the production of a skilful artificer. MM. Desouches also show a C-spring Landau, painted green with a greyish hue, relieved with lines of cream colour, trimmed to match with cloth and lace. A Victoria, in which there is some novelty in the mode of hanging, is painted brown, trimmed with brown cloth and Morocco; there is also a Driving Phaeton which displays great excellence.

Next to these are the carriages of M. Binder, perhaps not such great novelties, but yet equally excellent in design and workmanship. They consist of two Landaus, a Barouche, Brougham, and Drag; one is a noble-looking Landau, for two or four horses, with postilions and servants in rumble. It is painted green, relieved with white, and trimmed with green cloth and lace. The other Landau has a driver's seat: it is painted black, with lines of green trimmed with green. The Drag has its body painted green, top quarters black, carriage and wheels vermilion, with lines of black; the outside cushions, back-rests, rails, &c., are trimmed with brown pig-skin, with admirable effect, the russet-colour of the pig-skin blending harmoniously with the red, green, and black of the painting.

Messrs. Million and Guiet show a fine Drag, with the outside trimmed in a similar style. The body-panels, under-carriage, and wheels, are painted green, relieved with white picking-out and fine lines. Another of their exhibits consists of a fine Barouche, the body and carriage of which are painted blue, with lines of cream colour and vermilion, the mouldings of the body blacked, with a very fine line of cream colour. It is trimmed with blue, hard-grained Morocco and cloth, the seat-boxes, fall, &c., of the driver's seat plain cloth. A Brougham hung on C-springs,

painted black, relieved with lines of sage-coloured green, trimmed a rich green satin of similar hue, with lace to match, glass frames covered with velvet, front seat trimmed, with seat boxes of like-coloured cloth, piped with black patent leather, is another fine example of French work. There is a side-light Landau, of beautiful construction and shape, painted a rich lake, relieved with lines of black and vermilion; trimmed with dark claret cloth and Morocco, with lace red and black, curtains of sage-green silk; the binding lace of very neat design, consisting of scrolled ornament in lines of red on black ground. Messrs. Million and Guiet also show a nicely-finished Victoria with panels sham caned.

M. Kellner exhibits five carriages, comprising a Drag, side-light Landau, on C-and-under springs, a headed Phaeton, single Brougham, and Kellner's four-wheel Hansom. The Drag is certainly the most conspicuous object of this group, brightly painted and elegantly finished; its arrangements are somewhat new; the roof boards open outwards from above the doorways, and form the support for a table, at the same time giving air to the inside passengers, who are likewise provided with a temporary table, fixed by stays and pipe-eyes to the doors. This Drag is painted vermilion on the bottom quarter-panels, carriage, and wheels; the moulding round front and hind boot, as well as the seat rails, are also vermilion, as well as the under carriage: the top quarters and boot-panels are black. It is trimmed outside with Bedford cord, piped with black patent-leather. The interior trimmings are most effective, being of cloth, drab-coloured, inclining to gold, the lace a similar colour, relieved with vermilion, tufts red with spot of drab in centre. This arrangement is most pleasing; the red on the laces and tufts is nicely distributed throughout the lining, giving a rare

effect, worthy of special attention. The laces are well designed, the squabs drop from the top, and behind these are convenient receptacles for packets of refreshment, &c., that are thus readily at hand when required, can be used without dismounting, and passed to those outside without delay. The Brougham has its body painted black, relieved with a line of yellow round the inside, and blue round the outer edge of mouldings. The carriage is picked out yellow and blue, side by side, in equal quantities. It is trimmed with blue satin, with rich silk lace, with lays of gold, tufts with spots of same colour; the fittings are good, contributing to form a very handsome and beautifully-trimmed Brougham; but the effect is slightly marred by the continuous lines of the wide lace, so often repeated by the door pillars. The Hansom shown is constructed for public use, and seems likely, from its popularity in Paris, to command public attention.

Besides these, are the carriages of M. Belvallette, five in number, a Drag, Landau, Landaulette, Brougham, and Victoria. M. Labourdette shows four carriages, a Drag, Brougham, Victoria, and Stanhope. M. Geibel also contributes five, a Brougham, Barouche, Landau, Victoria, and Hansom. M. Poitrasson shows a 'Bus, Victoria, Brougham, side-light Landau, and Park Phaeton. M. Jeantaud contributes a similar collection of five carriages, while M. Charcot exhibits a 'Bus, Landau, Brougham with side lights in back quarters, a Brougham "Coupé Trois Quart," with side lights in back quarters as well as front, but ingeniously arranged to form an open or closed carriage; also, a Victoria, with Anthoni's patent arrangement of cricket-seat, by which the seat folds under the driver's, which lifts to receive it, and is thus completely hidden from view when not in use. M. Pilon shows four carriages, a Phaeton, Victoria, Brougham, and

Landau; M. Steinbach, a Brougham, with novel shape to front pillar, and a nice side-light Landau. M. Rothschild displays, among other carriages, a Dress Chariot, which is a conspicuous object of attraction; M. Felber, a Victoria and Brougham; M. Rostaing, a Brougham and Landau. The Paris General Cab Co. shows specimens of Broughams, Victorias, Landaus, and four-wheeled Hansoms, such as may be seen for public hire in the streets of Paris, and which should convince English cab owners what our own cabs ought to be. They are admirably adapted for their work, being neatly finished, and substantially built; and they display such good taste, as must please the eyes of a critical observer. The Paris General Omnibus Co. shows a rather large, well-built Omnibus, exhibiting features worthy of notice. There are some small Omnibuses (which I have mentioned before, under the term 'Bus) amongst the carriages of M. Poitrasson, M. Jeantaud, M. Charcot, and others, which deserve special attention. They are well constructed, compact. light, roomy, and of inviting appearance, such as one would also be well pleased to see in use as public conveyances in England. There are many other exhibits by MM. Ladague Frères, of Rheims. There is a splendidly-wrought perch on a carriage from Lyons, and others which I need not enumerate.

One finds in nearly all the French carriages the same excellent skill, finish, and good taste; a wonderful absence of those patchy contrivances, displaying some after-thought, which spoil many an otherwise good carriage. The French avoid all these mistakes by carefully designing their carriages at the beginning. By the system known as the French Rule, they make, in the first place, complete and accurate drawings, examples of which were shown at both ends of the French Carriage Department, by M. A. Dupont and M. Brice Thomas, well-known designers of carriages.

We were privileged to see many others at the establishments of those gentlemen, which convinced us what the French Rule can achieve. This system we had further means of examining, inasmuch as we found it in use in many of the workshops that we were enabled to visit, in which, by the side of the workman, was a working drawing, which he had for his guidance. Upon inquiring respecting this matter, the answer we received was, that "all who knew the French Rule were satisfied with its advantages, and used it; those who did not understand it, of course, could not use it." English draughtsmen, who have learnt it, give evidence in its favour; others, who could not see much in it, when they began to learn it, are now convinced of its utility. I cannot give my personal testimony on the system, as I have not yet learnt it. From information I have gained, I learn it is an adaptation of the principles of solid geometry to coach-building: it is, therefore, necessary first to learn that science, which is taught in our Schools of Art in England, where all students are required to pass an examination in advanced solid geometry. I obtained a treatise on the French Rule, while in Paris, and trust to succeed in getting it translated. The completeness evinced in nearly all the French carriages, I am much inclined to attribute to the teaching of the French Rule.

There are, however, other things which contribute to their success. On the walls of their section, we find large displays of coach ironmongery, comprising axles, springs, fore-carriages, steps, clips, scrolls, pump-handles, locks, and such a stock of coach ironmongery as the English coach-builder rarely gains access to. The exhibits of Messrs. Lemoine, Anthoni, Hannoyer, Burrel, Kuhn, and some wheels by Colas, go far to explain a degree of finish one could not previously understand.

By a method of stamping, or punching, the clips of carriages, pump-handle ends, scrolls, steps, and many other little appurtenances, are executed in a more ornamental style than we have been previously acquainted with. They are worked from neat patterns, of beautiful forms, which contribute very much to the elegance and finish of the carriages.

The cases of carriage-fittings shown by Messrs. Ledoux, Delasalle, Bois Frères, Armandias and Cie., and others, which contain ivory and other furniture, door handles, and other plated and similar goods, glove and ash trays, bottle and card-cases, looking-glasses, door-pulls, spring-blinds, a French coach-box and cross pieces, lamps, wood carving for blocks, &c., and numerous other little things of unquestionable value, furnish the coach-maker with such a choice as cannot but help him out of many troubles. These articles are in various styles, and fashioned in such a form as to enhance considerably (when rightly applied) the beauty of whatsoever may be the work for which they are required.

WOOD-CARVING.—The wood-carving exhibited in some of these cases calls for special notice; it is executed in a style generally unknown to us. It is from a special branch of work, entirely devoted to wood-carving, and displays an appreciation and adaptation of high skill, which only result from a high degree of art study. If we examine the wood-carving of English carriages, we find the only idea has been to cover the part carved with a multiplicity of spiky-formed leaves or scrolls, the more that can be crammed in various parts of the carriage the better; this monotony of form seems the highest aim in English carriage-carving. Not so with the Frenchman; by his training, he has a knowledge of beautiful forms, from which he is not only able to reproduce, but also to design other forms. Making use of this inexhaustible store, he is

able to suit his forms to the endless variety of his work, and produce beauty which the eye never tires to look upon.

When English carriage-carvers have used the same means, abundantly provided for them by our School of Art system, they will be able to do likewise, but not until then.

FORMS OF FRENCH CARRIAGES.—With regard to the general forms of French carriages, they are, in many respects, well known in England, but have some modifications in order to bring them better into conformity with French taste. Good ideas of proportion, and generally well-balanced forms, can be observed among them; not ranging from one extreme to the other, so as at one time partaking of entirely curved forms, at another of angularity. Severity of form seems especially avoided, and various contrivances are adopted, to steer clear of it; as few straight lines are used as necessity permits, and every endeavour seems to be made, to combine slightly curvilinear lines into such forms as will give boldness of outline without too much trespassing on angularity. In their proportions, one does not see the excessively light arch, which often serves, by contrast, to make the other parts of the carriage appear heavy; but doorway, panel, quarter, and boot, are all made proportioned one to the other; and the same may be said of the other parts. The French have scarcely had time yet to lose the influence which English forms exert over them. When they acquire freedom in this respect, they will do better.

FRENCH CARRIAGE PAINTING.—In the painting of their carriages, the French show a marked dissimilarity from us, although some still copy the English styles. Their ground colours are generally dark, black being largely used, both in the painting of bodies and of under parts. Some carriages are entirely dark, without a single line of relief; others are painted,

the bodies black, with wheels and carriage of lighter colour, showing up admirably against the dark back-ground which the body forms; again, we have the body-panels coloured, while the wheels, &c., are black. The colours are often not so positive as those we use, inclining more to the tertiary hues, and are often nicely softened down. Their lines of relief, of course, comprise the whole field of colours, with endless combinations, and they frequently use shades of neutral colour: these are sometimes placed alongside other colours, which they serve to enrich, the whole combining with pleasing effect. Not unfrequently, I noticed shades of the same colour, giving a shaded effect; on some carriages, a colour used for relief, with lines of all its various gradations, giving high light, local, middle, shadow-tints, &c.; on other carriages may be seen six or seven lines of colour graduating the one into the other. To enumerate their multitudinous schemes of colour, with their treatment of them in the French section, I will not attempt. They teach us that the French have a good knowledge of colour, and are rarely in a strait to produce any desired effect.

Their mode of lining, or relieving their work, is quite novel to us. They do not confine themselves to picking out and fine-lining, or a single picking-out line, or simply fine-lining, as the case may be, for the sake of uniformity. You may ask, "What style do they use?—and how do they know where to put their lines?" This has already puzzled English carriage-painters, who cannot understand what to them seems the want of uniformity. Sometimes springs are lined, sometimes unlined; and the same may be said of other parts. I have tried to understand this matter, and I do not think there is any hard and fast rule by which the French are guided. The French thoroughly understand colours, and how to combine them, and this knowledge

they make use of in the way they apply their colours. They are careful, first, to use only such colours as will harmonize—that is, such as add richness to each other; then, they consider the tone of their work, distributing their colours so as not to have one speck too much or too little for the purpose they have in view; not letting one colour predominate over the others, so as to depreciate from the richness and repose they desire to effect. The French painter considers the effect he is to produce (this, of course, must be determined by some superior mind, which lays down the whole design of the carriage-painting, trimming, and other parts); he then sets himself to produce it, proportioning and balancing his colours according to the knowledge he possesses; putting his lines where he knows they will best accomplish that end, at the same time bearing in mind the various forms he may wish to produce or suppress. One is struck with the fertility of resource shown in numberless contrivances, to overcome little difficulties as they arise, while we cannot help acknowledging how successful the result of his work has been.

The French painters have raised carriage-painting to an art, which has been, perhaps, never before so ably illustrated.

VARNISH.—I may here mention the subject of Varnish, which is now engaging much attention. It is notable that some of the French carriages, as well as the whole of Messrs. Brewster's, U. S., are varnished with Valentine's American varnish. Your reporters made special enquiry, in the various shops they visited, as to the varnish there in use; the almost universal reply they received was, "English," giving the name of a well-known firm. That Valentine's varnish is getting into use in large shops in Paris, one cannot, however, doubt. Whether it will eventually supersede the English, is still an open question; it is

now fairly on its trial, and a look at the exhibits varnished with it shows it to be an excellent varnish; it bears out with a full lustre only seen in the best varnish. Its makers claim for it great durability; but that experience alone can prove. It may be sufficient for our varnish-makers to know, that they have to compete with what certainly seems a promising varnish, which is being most energetically brought under public notice. I am not inclined to believe in the superiority of it over the best English varnishes. I examined the varnishing carefully, and I am of opinion there are as fine specimens of varnishing resulting from the use of English varnish, as the Americans can produce; while long experience attests the durability and other excellent properties of the best English varnishes.

HERALDRY.—I cannot pass the display of French Heraldry without a slight notice; they are by Messrs. Callot, E. Viollat, E. Thouet, Brice Thomas, and others, and are well worthy of attention. Some are specimens of transfer Heraldry, which possesses some advantage. By this process, the Herald painter is able to paint in his own studio, and afterwards affix his work to the part desired, which allows the Heraldry to be in hand while the body-painting is proceeding. As soon as the body is ready, it can then be affixed, and the body varnished without loss of time. In the ordinary way, the Herald-painter has not only a difficulty from his work being awkward to get at, but he must also necessarily stop the work of others while he has the body in hand. By the transfer process this loss of time is avoided; and as the Herald-painter, working in the quiet of his own studio, is able to place his work where he can do it most conveniently, he can produce more finished work. This system, of course, requires the

painting by hand of every device of Heraldry to be used ; it retains all its effect, when applied to the panels ; in fact, on seeing some executed by this process, we declared it done by hand, but were informed it was, of course, painted by hand on paper in the first instance, and afterwards affixed to the carriage by the transfer process.

The Heraldry painting is, in some instances, very fine, and exhibits a high degree of skill, accomplished draughtsmanship, thorough knowledge of light and shade, perfect knowledge of harmony of colours and good composition ; and there is evidence of intelligent purpose in every touch of the pencil. Some of the Heraldry is done in monochrome, a style which well suits the French ideas of repose exhibited in their carriage-painting. There are other specimens of transfers, exhibited by M. Brice Thomas, the same as we sometimes see in use for railway carriages in England. It is also the system adopted by the Paris General Cab Company, in affixing their initials to the numerous carriages they have in use.

TRIMMING.—In turning to Carriage Trimming, we naturally expect to find the Frenchman in his element. We expected that in this branch there would be much we might learn, and were not disappointed. Although we do not find the excessively ornate style, which we had associated with the trimmer's art in France, we discovered, what is far better, beauty of execution, thoroughness of adaptation, rare practicability combined with essential comfort, and pure good taste that leaves little to be desired. I expected to find the French display rare taste in their trimming ; but I imagined the English to be more practical, and our styles of work more conducive to comfort and durability. I

find that I was mistaken; for my examination of French trimming convinces me that the French workman as rarely sacrifices thorough efficiency for the sake of a pleasing effect, as we do, but that he has a better knack of combining the two. I noticed particularly how carefully he adapts his trimming to the purpose it has to fulfil, and the care shown by him in the choice of the material, choosing what is best suited to that end. In exposed parts of carriages, such as outside work, one generally finds the plainest style to prevail; thus, front-seat boxes and falls, cushions for Drags, door-trimmings, and the like, are as plain as they can conveniently be, such as one could readily brush, leaving no folds or creases for wet or dust to invade; or, if it should get wet, such as would most readily dry. In such parts lace is as little used as possible, pipings being more frequently substituted. The front-seat falls are generally stitched by machine in various tastful methods of ornamentation; frequently the edges are welted with black patent-leather. Falls to doors are avoided, as they are generally panelled, the squabbing of which contains the least possible fulness to suit the nature of the quilting; of course, there are carriages showing elaborately-trimmed doors, with full-pleated squabbing, but they are few, and will fulfil their purpose better as exhibits than in actual work. The pockets are not on the doors, but are placed inside, in the hind quarters underneath the elbow, with falls hanging over them. In Broughams, they are at the bottom of the quarters, just where they are most available. Bottom quarters are frequently quite plain in Victorias, Barouches, &c., thus affording no harbour for moth, damp, or dust. In Broughams and like carriages, the upper portion (top quarters) is sometimes left plain, contrasting nicely with the quilted work of the other parts;

at other times they are ornamentally treated, as in Desouche's Brougham. Round door-lights of Broughams, and other places where, from undue exposure, lace frequently fades, they are rarely trimmed with lace, but are finished with a neat beading or cornice of various descriptions, samples of which are shown in the cases of Bois Frères, Delasalle, and others. The place where the glass slides are usually fixed is fitted with a beading of a shape adapted to that purpose, generally projecting over the lace underneath, sufficiently to preserve it from the strong effects of light. I do not remember seeing in the French carriages a silk or satin lining used in any carriage unprotected with head, so careful are the Freneh to have the right thing in the right place. This was further exemplified in the pig-skin and Bedford cord on their drags, cloth on other open carriages, and Morocco in carriages less exposed; while silk or satin might be found in carriages, such as Broughams, where it could be well protected from strong light and wet. The inside cushions of Broughams, Barouches, and the like, are often made, as in England, with a slightly full top; just sufficient fulness being allowed to give form to the quilting, but not enough to make pleats or gathers, where it can be avoided; in other instances, they are made to match the back, which generally has the fulness arranged in pleats forming diamonds. The squab has three rows of tufts. Six tufts on top and bottom, and five in the centre row, forming diamonds with pleats from tuft to tuft, giving the required form. This description of quilting is generally executed upon frames, purposely prepared with nails projecting therefrom, and on which the canvas can be readily strained. On the canvas the form and size required are first marked; the tufts are then marked thereon, and give the desired pattern. It is then applied to the frame, the projecting

nails readily penetrating the canvas and keeping it strained as long as may be desired. The material for the back is then similarly marked out, allowing the necessary fulness to form the pleats. All kinds of methods are adopted to give the cloth, silk, or Morocco, the proper folds, such as pressing, creasing, and many other ways, which will readily occur to the mind of the trimmer. Hair is then regularly laid upon the frame, covering the shape of the back (previously marked out) in such quantities as the experience or judgment of the workman may suggest. Considering the fulness allowed, I should not be surprised to find that on the surface of the hair a layer of wadding was frequently placed, preventing the hair being felt through such substances as satin, and helping to give that softness to the touch for which French trimming is peculiarly noted. This operation successfully performed, the cloth, silk, or Morocco, is laid on the tufts tied to corresponding marks, the hair is regulated as required, and the squab stitched into shape, attention being given to the folds as it is sewn round. The required lace is then fixed as far as it can be, and the work is then ready to come off the frame, any little matter being attended to that could not be previously got at, and finally fixed in its destined place. There are other ways of doing this kind of work. Perhaps not two men would be found doing it alike; the trimmer's good sense and experience will soon lead him to the way which best suits the requirements of his particular case. The French, remembering that the linings will require dusting, do not sink the tufts or buttons, so as to render that operation difficult, but just sufficiently to give to the form the fulness required. This, of course, leaves the stuffing softer than when the tufts are tied right up, taxing the cord to its full strength. Many tufts are avoided, for, however they may improve the appearance of

the squab, they serve only to increase the quantity of the material used, and do not conduce to real comfort. The trimmers' work is the ministration of comfort; and it would be useful for them to remember the purposes to which their labour is devoted. Sometimes, it may be used by persons just recovered from sickness, or by those who are already so sick, that only a drive can keep alive the flitting spark of life, or by the invalid, the weak, and the aged. With how much thought and consideration, then, should the work be performed, that not the least attention may be lacking which might ease the wearied limbs, give comfort and repose, or help to retard the ebbing tide of life. The French fully recognize this necessity; their stuffing is beautifully soft; and if pleasant to the touch of the healthy, how much more so to the invalid. The healthy and strong may endure hard stuffing; but those who use carriages, and use them for any length of time, will give unquestionable testimony that the stuffing should be soft, and such persons the French stuffing would be sure to please.

Not only has the trimmer to consider softness to the touch, but also, especially in closed carriages, softness in the colouring of the materials used, that the eye may rest without weariness upon them. At the same time, the colours should be such as would, by contrast or otherwise, enhance the richness of the other colours used in the carriage, while they should form a back-ground to the dresses and complexions of its occupants. The French, in their trimmings, give attention to these matters; and we observe in them an anxiety to avoid positive colours, as well as shining surfaces. The colours generally used are quiet in tone, and have a strong affinity to the neutral, tertiary colours being in favour. Even in the spring curtains, quiet colours prevail. I do

not think I saw in the whole of the French exhibit a crimson silk curtain (such a favourite in England), nearly all the curtain-silks being quiet, soft colours, a match, relief, or complementary to the other colours.

This lowness of tone in painting naturally calls for a corresponding tone in the trimming, and this the French more frequently adopt; consequently, the effect of their linings is often exceedingly plain — greyish greens, or blues, browns, or drabs, relieved sometimes by distributions of their complementary colours, by tufts, or laces, or otherwise, or even lighter or darker shades of the same or similar colour, usually prevail. Sometimes the colour, to all appearance, is black, or dark green, or blue, or brown; but rarely does the green, or blue, or brown, consist of positive colour, but may, perhaps, be better described as black with the tint of green, or blue, or brown, as the case may be.

This treatment of the lining is not without its effect on the painting. The lustre of the varnish is apparently increased by the subdued effect of other parts; in some carriages, apart from varnish itself, there will not be found except in their glasses, another shining surface. I will leave the connoisseur to decide how much better this is than the highly polished surfaces of some of our trimmings, which dazzle the eye with their lustre and strange combinations of colour, each being antagonistic to the other, instead of aiding to give a pleasing effect.

The carriages of the Paris General Cab Company (such as the Victorias, &c.) have their linings so arranged that they can readily be taken out and dried, if they get wet; or if the carriages, as in the winter, be not in use, the linings are removed, and placed in a store-house, where they are carefully preserved, until again required. This, of course, contributes much to the durability of the lining, as well as

to the comfort of the public, from the ease with which wet and damp lining can be exchanged.

I must not quit the subject of trimmings without referring to the general excellence of their leather-work. The stitching exhibited on the various carriages is of the best kind. Not only the Paris firms, but MM. Ladague Frères, of Rheims, produce extraordinarily good stitching; I have never seen, in a similar collection of carriages, stitching which would bear a comparison therewith. Attention is given to the trimming of front-brackets of Broughams, &c.; patent nicely-welted leather is generally used, and so neatly arranged, that not a nail-head or inequality can be seen. In some cases, the seat-borders of Broughams and similar carriages are continued round the front to where they meet the seat-fall, thus filling up the space usually left vacant, and lining it with the inner edge of bracket-leathers.

So thorough has been the endeavour of all concerned in producing the French exhibits, that even the humble stitcher has risen to the occasion, his work proving that he has done his duty; and for such he has a claim to the honour due to excellency, as well as his more distinguished co-labourers. It is this individual appreciation of duty that ensures success; and the man who devotes his whole strength to the performance of his duty, however humble or trivial it may be, fulfils an honourable part in this world's strife, and deserves well of his fellow men. The success of great things depends often on little things. It is not, therefore, for any workman to think his labour unimportant. Such has been the case with the French in their Exhibition; little things and great have with them acquired equal distinction; their success has been proportionate. Not only have they succeeded in all branches of their craft, but they have also built carriages that do them honour.

The Sewing-Machine is gradually growing nearer to the

requirements of the coach-trimmer; in more than one section, we already witness the uses to which it can be applied. In the making up of carriage-linings, it is in many ways invaluable; seat-borders are shown splendidly stitched by it, and the hoods, extension tops of the American Buggies, nicely-welted bracket-pieces, beautifully-stitched seat-falls, and glass strings of many another carriage, show how much it may aid in a good finish of the work. I have for some years used the sewing-machine, and can say the uses to which it can be advantageously applied are innumerable; with the ingenuity which a knowledge of his need will readily supply to him, the sewing-machine will become a powerful engine in the hand of the trimmer.

MATERIALS.—The materials employed in French trimming are various, corresponding very much to those in use with us. There are the pig-skin and kid trimmings of the drags already mentioned, which, I think, are novelties to us. The pig-skin trimmings outside the drag look exceedingly well, and are good, if found to stand the weather. The kid-skins they use appear to me only an imitation, as skins of kid would be too small to do the work required in trimming. There is a material called lamb-skin, which is a close imitation of kid, the skins of which are much larger, and this is, I think, the kid in use on the carriage to which I have referred. I should imagine it too delicate a material for the use to which it is applied. Sunshine and showers would, I think, soon tell a tale in the shrivelling-up process which would be likely to follow.

CLOTH.—Cloths are largely used of the colours before described, and *in look* are equal, perhaps preferable, to that of the best English makers, while their cost is less. In the exhibits of cloth can be seen the unlimited shades of colour that the French may call to their aid, especially in the greys. The French are quite aware of the weakness of

their cloth, and are, year by year, improving it. Already French cloths are finding a market in England, and, unless English manufacturers can improve in a like degree, they may soon find the French formidable competitors.

MOROCCOS.—Morocco is largely used in Broughams, Barouches, Victorias, Landaus, and the like vehicles. The effect of wet upon it, with other causes, prevents its competing with cloth for the rougher descriptions of work. The Morocco of France is remarkably supple, the Strasbourg Morocco being almost world-famed. It is said, that the water of France is peculiarly favourable to its manufacture, as well as to that of other leathers. This exceeding suppleness renders them particularly adapted for the trimmer, who would be well pleased if he always got such skins to use in his work. The colours are remarkably good, and of unlimited variety. The Morocco used in the French carriages is almost entirely the hard or dull-grained. I did not observe one of a bright surface.

SILKS.—In France we look for the use of silks, wherever the opportunity occurs; but great care is shown in the manner of their use. They are rarely used in carriages much exposed to the effects of damp, or unmitigated sunshine. The silks exhibited are in many varieties. One kind of silk has the appearance of a dull-grained Morocco, and is shown in a variety of textures, coarse or fine. It is exceedingly soft, and lends itself to the manipulation of the trimmer remarkably well; it is called Drap de Soie Chagrine: MM. Bosson and Co., Rue du Quatre Septembre, are the manufacturers of it. The effect of light and shade upon it, as it graduates in the folds of various forms, which the trimmer may give to it, is very beautiful; and one wishes that in other essentials it were as good as its beautiful appearance would imply. Like other silks, it is capable of taking

the richest dyes; therefore, it is to be obtained in colours of the richest and choicest description. For these good qualities, its peculiar softness, and comfortable and inviting appearance, it has attracted considerable attention. M. Kellner and others exhibit in their show-rooms some carriages nicely-trimmed with it, as well as M. J. Lohner and Co., Vienna, and others in the Exhibition. Respecting its wear, experience alone can tell. In that respect, it may not prove so satisfactory, as it will probably fray out; while I am afraid it would be troublesome to keep clean.

There are numerous displays of figured silks, some beautiful in design, which do not seem, however, in general favour. One side-light Landau, in the Austrian section, is nicely-trimmed with this material. It is of a rich brown colour, and the trimmer has taken full advantage of the design, in executing some good work with it. I suppose the liability of figured silk to wear in the raised parts of the design has been discovered, and that therefore it is comparatively little used.

Plain unadorned silks or satins seem general favourites. For the French pleated style of trimming, they are well suited, readily taking and maintaining the various forms which the workman's taste may give to them. Some of the finest linings in the Exhibition are executed in those materials which are notably the showiest. A Brougham from Belgium is elaborately trimmed with green satin. A Barouche from Italy, with questionable propriety, has the head-lining as well as body-trimmings, entirely of a very rich brown satin; but the French, with their rich, subdued colours, blues, greens, browns, and black, show how much they are capable of doing with plain silk or satin.

LACES.—In laces[1] we find the French almost without competitors. We know there are large English firms who produce lace of a very high order; but no specimens of their manufacture being shown, we were unable to judge of their comparative capabilities. In this matter the French carriage-builders are well sustained by the lace manufacturers, whose exhibits of laces are deserved objects of admiration in the carriage and other sections. Large cases of trimming material, of which the laces form a most important part, are exhibited by Messrs. E. Neveu, 227, Rue St. Denis; Boyriven Frères, 37, Rue le Pelletier; Cagnet, Bosson, and Co., Ch. Poulet. These gentlemen show in the same cases Morocco, silks, cloths, which I have noticed, and almost

[1] The carriage-laces of France hold a high position. The original process, invented in England, was transferred to France, improved there, and has attained greater excellence. A trade had just commenced in supplying England with these laces, when Paris underwent its memorable siege, and the supply was suddenly cut off. An enterprising firm in Dublin took up the manufacture, and has since been able to hold for Ireland what would otherwise have been produced in France for the English trade. This little fact serves to show that, in this case at least, no prejudice exists against her manufactures, when produced in such a manner and price as to make them worth buying.—G. N. Hooper's *Survey, Paris Exhibition*, 1878.

Coach-building for exportation would appear an industry well suited to Ireland. Nature has denied her a supply of coal and iron, but special trades can furnish her with the parts required in carriage-work. Ireland has cheap labour, its jaunting cars (and the strong ones formerly used by Bianconni) have great strength and durability, while their native manufactures of poplins, balbriggan hosiery, Limerick lace, and the fine linens of Belfast, show that the Irish possess much artistic taste. Their many fine harbours give them great facilities for shipment; and such light measurement goods would always command low-priced freights, while the appointment of agencies in our colonies would secure a ready sale of strong and useful Road Carriages. The success of the large carriage establishments in Paris is evidence that a well organised "Limited Company," managed by coach-builders, would prove profitable. The requisites for such a trade are adaptability to the wants and fashions of the place, strength, and cheapness. Elegance of construction would follow. The versatility of the mind of the American gives to him, in such matters, a great start in foreign markets.

every other trimming requisite. The large variety of laces exhibited would well please many an English carriage-builder, and convince him that he has but a limited number to select from in England. Some English carriage-builders already use French lace, a testimony that the matter deserves attention. The laces in the carriage exhibits of France are convincing proofs that their lace manufacture is not one whit behind our own; while a look at the cases with lace displayed confirms the fact. Some of their laces strike me as particularly serviceable; they are worked with an even stitch, without projections on the design, the only inequality of surface being in the lay of silk on each edge. The designs are exceedingly neat, the colours generally well selected, while they are as finely and regularly woven as any workman could desire. In fancy-patterned silk laces, &c., where length of service may not be much desired, the store is almost inexhaustible. Here those beautiful greys, which the French know so well how to arrange, are conspicuous, together with other excellent arrangements of colours and designs, from the simple running spray of the rose to almost every other style of design. I looked long and lovingly at these French cases, and succeeded in getting a few sketches of their designs; but as I find selections of these laces are readily supplied by the manufacturers, I need not include them in this Report. I hope, from a knowledge of the laces made in France, the English carriage-builder will demand something better of his lace manufacturers than what he at present is supplied with; and I am quite satisfied that there are English designers whose art education would enable them to produce as admirable designs as those now exhibited by the best French manufacturers. In M. Cagnet's case may be seen a fine specimen of hammercloth, with all its garniture well conceived and cleverly executed, which is worthy of careful study.

LEATHER.—The exhibits of leather are many, the French having arranged their specimens in a variety of ways, to show its particular excellence. Throughout the whole of the French department, the leathers reach a high state of perfection. The enamelled hides possess a degree of suppleness eagerly sought for, while, in other respects, the cleanness and high finish of the leather is a feature the trimmer will not fail to remark. In this respect, I am pleased to report that the French exhibits are not alone; for the English displays, though, perhaps, not so numerous, or so conspicuously and fairly placed as the French, are unexceptionally good. The hides are not shown, in the English carriage department, beside the carriages, as are the French, but are exhibited in other parts of the English section. They consist of the collection of Messrs. E. T. Holden, Walsall; Hyde, Archer, and Co., London; J. S. Deed and Sons, London; Dixon, Son, and Taylor; Handford, Greatrex, and others. There is amongst them a complete collection of every kind of leather used by the coach-builder, together with mats, rugs, and leathers for other purposes, of every variety, in such a state of perfection as cannot fail to give satisfaction. The show of leather is not confined to England or France; for in every part of the Exhibition are extensive collections from our colonies—Australia, Canada, and others contributing their share in conjunction with Russia, Belgium, and almost every other country in Europe; so that the competition in the leather market is exceedingly keen, and the superiority of any particular country can only be maintained by the most strenuous efforts.

The Textile Cuir Company, 30, Rue Notre Dame des Victoires, deserve a particular notice. They show, in the French carriage section, a large collection of imitation leathers of various thicknesses, from that of the stoutest leather to leathers of the lightest kind, of every variety of

colour, grain and texture, patent, enamelled, and dull, the imitation being in some cases very successful. Some of the carriages shown are trimmed with this material; but, as a trimmer, I confess to no great liking for its use; it has a hardness of appearance, however much its durability, and other qualities may recommend it. There are other uses to which this material may be applied by the coach-builders with advantage. One description, a kind of floor-cloth, with a surface like patent-leather, but of more subdued brightness, is used in many of their carriages where we should use floor-cloth. It was also, in a like manner, used in the workshops we visited, as well as in the carriages of the Paris General Cab Company. It, doubtless, has qualities which may well recommend it for that purpose. The floor-cloth with which we are familiar is rarely found in French carriages; its crudeness of design and colour would be utterly out of place there; neither could I find any exhibit of carriage floor-cloths, although I wished to discover some material of that description worthy of notice, as it is time we were acquainted with something superior to what is used in our own trade.

Kamptulicon is often used, especially on Drags, and to the drivers' seats of other carriages. The facility it affords to the grip of the drivers' feet lessens the danger of slipping; and the ease with which its colour harmonizes with almost any colour in use in coach-building, renders it exceedingly useful. How well its dull russet colour arranges with the pig-skin trimmings of that portion of the Drags, can readily be imagined.

One exhibitor in the French section makes use of thick black strap leather, in place of carpet or mat, at the bottom of the driver's seat, which he has cut to fit, and stamped or creased in an ornamental manner. Carpet is however, often used for that purpose; it is generally plain, without any design, and, I think, is known as French pile

carpet: this description is also used for the interior of carriages where carpet is necessary. Punched indiarubber mats are frequently seen in the parts where they can be advantageously used.

I should weary the reader, if I attempted to describe all the materials exhibited for carriage-trimming. I think I have noticed enough to show how keenly the French manufacturers are alive to the necessities of their department; they are in this, as in the other departments, making rapid progress, and thereby giving incalculable assistance to the carriage-builder.

How France has achieved so much may be worthy of some consideration. Throughout the whole of the Exhibition, there is abundant evidence of the superiority of the art education of the French, especially in relation to coach-building and whatever appertains to it. Still more we can notice the sympathy existing between those engaged in the production of carriages; the employer and employed seeming knit by a tie of sympathy for a common purpose, there is a notable agreement between them. The taste and skill of the employers seem to have been fully appreciated by the men interpreting the very spirit of it, and thoroughly seconding the efforts of their masters. Not only is it desirable in the relations existing between master and man, that the service of both brain and hand should be enlisted for the common good, but it also is necessary that each should give to the other that hearty service and good-will which stand in such good stead when bearing and tiding over adversity, learning its lessons, and turning them to account. The success of employer and employed is one. Their interests lie together: it is impossible to separate them, and they are not wise men who do not, in the face of threatened danger, strive to avert it by united efforts.

We cannot fail to recognize in the French workman an industrious, sober, patient, and persevering man; while in coach-building he seems particularly at home. The French mechanic is as hard-working and quick a man as his English co-labourer, and, in carrying out his work, is encouraged to liberty of thought, and any useful suggestion from him is especially appreciated. In the matter of remuneration or pay, taking it in its various bearings, I do not think there is much difference between France and England. In France, they are recognized as mechanics of the highest order, and, therefore, obtain the best wages paid in that country. In England as much cannot be said. The English artisan has much to do before he attains the high position he is destined to take. The results of this Exhibition teach us our weakness, and should spur us on to action. It is of the greatest importance we should at once find a remedy. The want of art education is not found in all our industries. Many of our great manufacturers have recognized the necessity of art education, availing themselves of the facilities afforded by our Schools of Art; and have proved the advantage of their instruction by the improved taste displayed on the part of their workmen. This Exhibition shows, however, our French rival not to be unconquerable. If the English manufacturers are able, in other trades, to compete successfully with them, producing works that are, in many cases, unequalled, this exhibition of carriage-building, although it startles, need not alarm us. In France, there are technical schools in connection with almost every industry; the two in Paris, connected with coach-building, were closed, as usual, at the time of the year when we made our visit; but, from the exhibits of works connected with such schools in the Exhibition, I think those of the English ones would compare favourably with them. From

my long connection with our Schools of Art, I can say they have all the necessary elements to produce art workmen of the highest order, and that they are especially applicable to the purposes of the coach-building trade; but such schools as the coach-makers require would be in general more prominently useful in the metropolis.[1] I have no hesitation in saying that, if the workmen of England give their attention to the art instruction provided for them, they need not fear competition, come from whatever quarter it may.

The questions arise—Why does not the workman take greater interest in these matters? How does he spend his leisure hours? In answer to these inquiries, honesty compels the admission that too many of our fellow-workmen spend their time in a way very undesirable. Habits of intemperance have been formed amongst us, and until the cause of sobriety has made more progress, it seems useless to hope for that full advancement in education which the exigency of the times demands. And it becomes the duty of each of us to aid in the suppression of those influences which impede so desirable a work: how many these are, every workman well knows. Among them, I may name the visits of potmen to workshops; the influence they have in inducing men to drink; men having to drink, rather than be thought mean or unsociable; and the young men thus learning drinking habits. It requires courage to withstand the jeers and ridicule of fellow-workmen, while the worst men of a workshop take delight in trying to make others like themselves.

The attendance at Schools of Art should be encouraged in every possible way. Clauses might be inserted in

[1] Not excluding large towns where the trade is in sufficient strength to support them.—*Editor.*

indentures, compelling attendance at such places during apprenticeship. Let those, however, who attend the classes not expect too much from them: they are only the means for helping them forward. Artistic taste is not the result of a few months' study. Simple freehand or model drawing is the commencement; and those who resolve to acquire art-training, will find it only to be gained by earnest and persistent study. If they devote their time to such a praiseworthy object, they will be surprised at the result; and, as they advance in knowledge, they will find the usefulness and pleasure of their studies increase, and be productive of profit. If my fellow-workmen can be persuaded to act thus, we Englishmen have a glorious future for our trade. The Exhibition at Paris produces nothing that should dismay us. Persistent effort is one of the characteristics of the English workman; and the effort, rightly directed, will ensure brilliant triumph. In conclusion, I need only say to my fellow-workmen, have faith in your own powers, and use them with all your might. Do not think taste inherent in any people; you can acquire it. Have faith in nothing but patient toil, and the end will prove you to be right; and it shall no more be said of us that in art or any other knowledge that may advance our calling to its highest possible perfection, we are second to any people in the world.

WILLIAM FARR,
COACH TRIMMER.

51, *Castle Street, Salisbury.*

REPORT

ON

COACH PAINTING WORK.

BY

WILLIAM SIMPSON,

London.

COACH PAINTING.

I HAVE the honour to submit the following Report on Coach-painting :—

I visited first the section occupied by the French carriages, which is the largest in the Exhibition, and consists of no less than 180 exhibits, and found the builders had secured the best position for their carriages, which were placed on raised platforms, out of the way of dust and other inconveniences. Great taste in the decoration of the walls added to the display; for the materials used in the manufacture of carriages, such as leather, cloth, lace, and silk, were artistically arranged on the walls; in fact, every kind of necessary trade article was arranged to the best advantage in regard to gradation of colour and form. The whole formed a fine display, and the harmony of colours in the painting of the vehicles was well carried out. The French painters appear to have given their closest attention to the essential process of blending their colours, especially in their *picking out.* They have not only studied this important subject of harmony of colours in the painting, but have also carried it out in the trimming.

If, for instance, we take, the Victoria painted black, with a few lines of white on the prominent parts of the carriage, such as the felloes and stocks of the wheels, tops

of the springs, &c., we find it trimmed with black satin, and a small piping of white introduced in the most effective places, such as the edges of the cushions, seat-fall, tufts, &c. Taken as a whole, this Victoria makes a pleasing impression, owing to the correspondence between the *painting* and *trimming*.

Another case in illustration is a Victoria painted dark green, with lines of a lighter shade of the same colour. The body is trimmed with dark green, relieved by lace of a lighter shade.

This plan of making the painting harmonize with the trimming, or *vice versâ*, has been generally adopted by the French exhibitors.

On the contrary, the British carriages, as a rule, are crowded, on the wheels and under-carriage, with as many lines and gay colours as possible, irrespective of taste, which tends to make them look heavy; whereas the French have successfully grasped the idea of making those parts appear very light, by putting as few lines thereupon as possible. They have also introduced a new style of *picking out*, which is both artistic and effective. The new idea consists in placing down the centre of the spokes, springs, &c., two lines, side by side, of different shades of the same colour, which has a pleasing effect. The colours thus placed blend gracefully one with the other; for example, a Victoria, with a fixed head, painted black, with a white line, shaded by another line of drab, has a very effective appearance. The like plan has been followed in a variety of other colours. With this exception, there is little difference or improvement (as regards colours) in a comparison of the French with the English, or other carriages.

The majority of the carriages are painted as neatly as possible; in fact, many of them are either all black or a very dark colour, and merely relieved by a line of red, or some

other bright colour, on the stocks and felloes of the wheels; in some instances, there are no lines at all. Again, there are instances where the bodies are painted black, and the carriages yellow, or other bright colour, and simply relieved by blacking the top hoops, axle-trees, bolt-heads, &c.

The pigments, with one or two exceptions, appear to be the same as those used in England.

In some instances, the panels are decorated. A prominent example is a private omnibus painted green and relieved by squares of black, much after the style of a chess-board.

A Drag is also shown with panels to imitate mahogany, which, taken as a whole, I consider one of the best examples of fancy painting in this section.

The panels of some of the carriages are beautifully finished, and as near perfection as possible; but there are others which show, to a great extent, the bad effects of time and heat upon the varnish. In many instances, the grain of the wood and pinholes show much more than in others, which I cannot account for, unless it be that they have not had sufficient time and attention bestowed on them; for I find, on inquiry, that the defective ones, as well as many of their carriages, have been finished with English varnish, even some that have been painted on the American system.

The French carriages painted on the American system have, nevertheless, been worked up to a finer surface than the others, and have stood the heat better. The streakiness, which can be detected even in best painted English carriages, is absent; while even in the most difficult parts, where one would naturally expect to find the painting faulty, it is as smooth as that in the middle of a panel.

I found the attendants very courteous and obliging, and always willing to supply me with any information, both as to what varnish was used, and the method of painting adopted.

I cannot speak too highly of the attention and kindness I received at the hands of Sir Cunliffe Owen, Secretary of the British Commission, who obtained for me permission to visit some of the coach-building establishments in Paris, where I was enabled to inspect their painting shops and note their system of working.

The French system of painting is similar to our own, with this exception: they use a great deal of *drying colour;* and their *flatting* varnish appears less elastic than that used in England, by which means they are enabled to flat much smoother than can be done with English varnish.

They have also superior lofts for *finishing*, which are set apart for that purpose; and on no account is any person but the painter working at the job allowed to go in, which accounts in a great measure for the absence of *nibs* in the varnish on their carriages. The brushes used by them are somewhat different from our own, being much flatter, and more suitable for the work, than the round ones used in England.

In conversation with one or two painters who formerly worked in London, I was informed that the climate of France is more favourable for varnish than that of England, and that they seldom have an instance of the varnish becoming bad, an ill effect which they attributed to the sudden changes of temperature so peculiar to England, and which they considered detrimental to varnish.[1]

[1] At the close of the Exhibition, I went carefully through the building and examined the carriages. The summer had been unusually hot and trying to varnish. I found little difference in the duration of the best varnishes, from whatever country they came; except several of the English and a few of the French and American carriages, all had suffered more or less in the surface; pin-holes, joints of mouldings, boot-tops, and roofs, showed a want of care in preparing the ground-work and laying on the varnish, while a few were positively shabby. The few exceptions appeared as if the varnish had been but recently finished, and it was most creditable to the English builders, as their carriages were so much exposed.—*G. A. Thrupp. Communicated to the "Carriage Builders' Gazette*, 1878."

I also had an opportunity of seeing the American system of painting; and, from what I can judge of it, I think it has overcome two of the greatest difficulties in the way of producing a smooth panel, namely, stopping the grain of the wood, and the porosity of the "filling up."

The first thing done on the American system is to give the bare wood a coat[1] of what is called "permanent wood filling." This is a liquid of the consistency of varnish; and I am told it will entirely close the pores of the wood, as soon as it is dry. The "filling up," or "ground rough stuff," is then put on (four or five coats generally), when the stain coat is "rubbed down" and allowed to dry thoroughly from the water used in "rubbing;" another thin coat of the "permanent wood filling" is applied, in order to effectually close up the pores of the "rough stuff;" when this is thoroughly dry, which requires at least forty-eight hours, the painting is carried on in the usual manner. The American system is said to entirely prevent the absorption of any colours or varnishes that are afterwards put on. It is a great advantage both in an economical and sanitary point of view; because it does away in a large measure with the use of white lead, which is, as is well known, very injurious to health.

The French painters use a preparation called "vernis blanc," which is a liquid, and is put on before varnishing for the last time. They run round all the quirks and crevices with it, in order to kill any dust or dirt that may not have been taken off by the sponge. Being a spirit varnish, it dries rapidly, and the painter can

[1] This is an American patent. It is shipped in square tins ready for use, and is of about the consistency of varnish.—*W. Simpson.*

I presume the specification in the Patent Office, U. S., will give its component parts.—*Editor.*

proceed at once with his varnishing, without fear of working dust or dirt out of any of the crevices.

I also had an opportunity of visiting the "Paris General Carriage Company," which employs over a thousand workmen; but I failed to notice anything different from what I saw at the other factories, excepting that the Company's carriages, being used for public work, were not got up so well as they would be if made for private individuals; and that ivory-black was used instead of Japan, which, I think, is only done for economy, as it is not so good a colour as Japan.

I also noticed their plan of transferring[1] heraldry from paper to panels. First, the design is printed on paper and covered with a kind of gum or gelatine, which is then carefully cut in with "gold size" by the painter, and allowed to stand until it has a slight "tack" on it. It is then pressed firmly on the panel, and after a few hours, the paper is washed off, leaving the printed design on the panel.

The idea is not new, for this method has been used on English railway-carriages for some years. It is much cheaper than having to paint armorial bearings or monograms on the carriages separately. The same method of transfer is also adopted for decorating china, articles of furniture, &c., under the name of Decalcomanie.

I may here mention that the heraldry on the French carriages is, as a rule, very different from that on English

[1] There are shown, by M. Brice Thomas, examples of transfer ornaments for carriage-panels or heraldry; those of the Paris General Carriage Company show the effect when used. They are printed in colours on thin paper; a thin coat of spirit-varnish is placed on the carriage-panel: when partly dry, the transfer is carefully and firmly pressed on the panel: in a short time the paper is washed off with clean water, and the ornament alone remains on the panel: the cost is trifling, and they form a neat finish to the 5,000 carriages owned by the Company.—*G. N. Hooper's Survey, Paris Exhibition*, 1878.

ones. It is more natural, and not so conventional; take, for instance, an animal, such as a lion or a dog: they are painted true to nature; whereas, in England, the rule appears to be to make them as unnatural as possible. The same may be said respecting scroll, and of most of their ornamental work; they show more grace and freedom than is seen on English work. Some very fine specimens of heraldry were also shown on the walls of this section.

Having noticed a statement in a published report on the carriages in the Paris Exhibition, that most of the French carriages were "hand polished" after varnishing, I inquired about it at the different establishments I visited (for it was a subject in which I am much interested), but failed to gain any information: in fact, they hardly seemed to understand what was meant by polishing, and appeared to think that I must mean "flatting." If any means could be introduced for polishing new varnish, or varnish that has become dull by long standing, it would be much appreciated by the master coach-builder, who, when a carriage has been in stock for some time, is frequently obliged to send it to the painter to be re-varnished. I also noticed some very neat patterns of painting, to be shown to customers for their selection.

These patterns are made of pieces of tin or card-board, about four inches by three, and are painted on both sides. When not in use, they are put in a box made for that purpose; and if the coachmaker should want to take a few to his customers, there is a neat kind of album into which they can be placed and carried in the coat pocket. This is a great improvement on the English style of pattern spokes, which is clumsy and inconvenient.

There were also in this section some good drawings

of carriages, full sized, which were executed by students at the Technical Schools connected with the trade.

Schools of this description are greatly needed in our large towns: there is only one at present in England, namely, in London, which is but in its infancy. It bids fair to succeed, though still in need of support both from master coach-makers and journeymen.

With regard to the public conveyances, Cabs, Omnibuses, &c., there is not much difference in the quality of the painting between them and the English, but they are done in a much neater style. The cabs are generally painted dark green, "picked out" red, the omnibuses white or brown, with very plain picking out.

The rate of wages is about the same as in London, the average price being 5f. 50c. (4s. 7d.) per day of ten hours.

I next inspected the English department, where there were sixty-nine exhibits, but saw nothing especially attractive; in fact, the majority of the carriages looked as though they had been taken out of a coach-maker's ordinary stock, and not specially intended for exhibition. Indeed, quite as good a show can be seen in the London parks, on any fine day in the season. These carriages are placed in a very bad position, being in the midst of a great deal of machinery; and I doubt much whether a worse situation could have been chosen in the Exhibition. The varnish certainly has shown to some extent the bad effect of time and heat; but there are some very good specimens of coach-painting.

From what I have seen in the Exhibition, I am convinced that it is time for English painters to pay greater attention to their craft, or the probability is, that other countries and other workmen will soon surpass them, both in quality and style of work.

There being nothing calling for further notice in either the French or English sections, I next visited the part occupied by the United States of America, where there were twenty-six exhibits; and, candidly speaking, I never saw such fine painting before. They are the best painted carriages in the whole Exhibition: I allude more particularly to the fine surface on them. They are, however, so crowded together, that the beauty is, to a great extent, lost; but they show neither blemish nor defect from their long journey across the Atlantic.

The "American system of painting," which has already been described, is used throughout the whole painting of their carriages. The colour and "picking out" are very much in the same style as the English.

The agricultural machinery in this section was handsomely got up; but it appears waste of time and labour to paint machinery of this description so elaborately. It was done, I suppose, for show in the Exhibition, and would be differently painted for practical purposes.

The Belgian and Italian carriages were well painted, but in very plain colours; and I saw nothing worth noting. The same may be said of all the other sections.

In closing this Report, I can but express my sincere thanks to the gentlemen who did me the honour to select me as one of the artisan reporters at this wonderful Exhibition; and I also thank the officers of the British Commission, who showed me much courtesy, and extended to me all the assistance in their power.

WILLIAM SIMPSON.

3, *Moore Street, Chelsea.*

SUPPLEMENTAL REPORT

ON

EXTERIOR IRONWORK FITTINGS, INTERIOR FITTINGS, LAMPS, PLATING, AND CHASING OF CARRIAGES.

BY

ROBERT BURGESS,

London.

EXTERIOR IRONWORK OF CARRIAGES.

GENTLEMEN,—I have the honour to inform you that, in obedience to your instructions, I went to the Paris Exhibition, 1878, to examine and report upon Coach Plating, Chasing, Lamp Making, and Fittings of Carriages, to which I have added Harness Plating.

In making my examination, I thought it best to enquire into prices, which are, therefore, quoted where practicable.

It may not, perhaps, be considered out of place to mention that I went to France with the idea (which seems somewhat general), that English carriages are not only the best, but acknowledged to be so by other countries; and that, although the pre-eminence enjoyed by England had of late been threatened by foreign rivals, we are still much in advance. I therefore expected to find Continental builders copying the English, as the most worthy of imitation; but I found on the contrary, that nearly all the coach-building nations follow mainly the French, not only in the general lines, but also in the small iron-work and other details.

This struck me very forcibly, because it appeared to show that, by common consent, the French are acknow-

ledged to be the best, both in the designing of shapes and in the details of construction.

A leading English coach-maker, in conversing on this matter, attributed much of this popularity to Parisian carriage-draughtsmen sending full-sized working-drawings to the Continent, thus disseminating French shapes; and he thought that the recipients of the drawings would, probably when they came to the carrying out of the small details, enquire of the draughtsman where they could purchase a supply of them, and would, of course, be given a French address. Following up this clue, I went to a well-known draughtsman, M. Dupont, and inquired—

(1). Do foreign coach-makers purchase drawings of you?—and, as a rule, are they small or full-sized? The answer was, "Many; and full-sized."

(2). Do you supply more drawings to the Continent than to England?—Answer, More to the Continent.

(3). Are more pupils sent to study in your office from the Continent than from England?—Answer, Yes.

(4). Have you been receiving them longer from the Continent, or from England?—Answer, From the Continent.

(5). Do you get inquiries from the Continental receivers of your drawings, as to where they can purchase the small ironwork, and other fittings?—Answer, No.

(6). To what, then, do you attribute the Continental coach-builders following so closely French models in the small details of metal, as well as in the lines and general arrangements?—Answer, I have no idea; I never thought of it.

Question 6 was also asked of the uncle of MM. Belvalette, Champs Elysées, who has charge of the factories, and his reply was, "Because the French are the best as regards structural details; and the distribu-

tion of parts, with respect to combining strength with lightness, which is much more studied by French than by other makers." In continuation, he said, that severe study is given to all the operations of French coach-building, not only by employers and foremen, but also by workmen; giving, as an instance, the fact that their men (Belvalette's) attended coach-drawing classes, paying two francs per month ; the whole of which, with a present in addition, according to proficiency, was returned to them by the firm at the end of the year.

No comment is necessary on the excellent example thus set by foreign coach-builders, except it be that, by this and similar means, the French seem to be progressing at a rate which should alarm the English trade, and cause it to make great efforts to improve, and thereby, at least, maintain its ground.

If, in some parts of this report, I seem to trench upon ground not exactly belonging to me, or to hazard opinions upon carriage construction generally, the reader will allow my anxiety on behalf of my trade to be my excuse. If also I, at times, notice things not immediately connected with coach-building, or dwell overmuch on what I consider the lessons to be learnt therefrom, the reader must attribute it to my desire to add something to the sum of improvement required in coach-building and its branches, in common with all trades, and without which retrogression is certain.

French coach-builders appear to depend more upon the ironmonger than their English *confrères*, and the result is that the French ironmonger has a greater incentive to supply a larger variety of the articles in his department, in a cheap and efficient manner, which causes this trade to attain greater importance than it attains in England.

It may, perhaps, be said that, if the English ironmonger were to display more enterprise and skill, and were readier to introduce new shapes and inventions, he would meet with the same encouragement.

Be that as it may, experience up to the present time does point the other way : for instance, a prominent member of the English ironmongery trade who, during the last ten or fifteen years, notably since the 1867 French Exhibition, has expended much money, skill, and research in introducing novelties and inventions, both home and foreign, to little purpose, on account of the apathy of the Coach trade generally.

There were 148 exhibitors in the French carriage and subsidiary trades, 38 of whom were exhibitors of hardware, making amongst them a large and varied show of axles, springs, and general ironmongery of old and new designs, some making a speciality of under-carriages, both complete and in stump.

The system, which extensively prevails in Paris, of supplying the smith with parts of under-carriage ironwork ready for welding up, must materially diminish the expense of smiths' work, and would bear imitation in England.

It was attempted, some years ago, to introduce something of the kind in this country ; but scant encouragement was received, owing apparently, to piecework, and the dislike to change by the English iron-worker, and his consequent disinclination to allow a sufficient set-off in the price for the portions of work supplied in stump. But there can be no doubt that, properly worked, the system is worth trying, and would prove profitable.[1]

[1] There are several large factories in and near Paris for the wholesale manufacture of iron-work, springs, and axle-trees, and specimens of their work appeared in the Exhibition. At such establishments, as in the similar factories in

The French axles were well-displayed, several efforts at improvement being noticeable, especially in the nuts, with a view to dispense with one of them. But it is doubtful if the beautiful simplicity of the Collinge axle will ever be excelled.

On visiting the axle and spring manufactories, they were found to be lofty, well-lighted and ventilated, and well supplied with machine-tools, steam-hammers, &c. The general processes of making axles are the same as in England. Some improvement, however, was shown at one factory, in the shape of improved automatic machinery for the fitting and finishing of axle-caps and nuts. The boxes are principally cast-iron, and hardened by a special preparation, in which they are kept at a red heat for five hours.

The spring-plates were cut, slotted, and thinned, and the cup and other ends forged, and every other process, except fitting the plates, executed by machinery. It might be expected that springs so produced would not behave so well as those entirely hand-made; such,

and near Birmingham, there are great facilities for economy and accuracy of manufacture, in the use of the steam hammer; grindstones instead of files; cams and rollers for reducing the ends of steel spring-plates, and drawing out iron-work, punching and drilling, and other useful machines. From an examination of the work produced, it seemed to me that the French pay more attention to the perfection and uniformity of the articles they manufacture, than to economical production only. London workmen have a misgiving about springs and iron-work of Birmingham manufacture, where they say everything is made to give way to cheapness. That such need not be the case in wholesale manufacture, these French factories fairly show; and in England the manufacture of rifles wholesale, of a marvellous cheapness, and yet of a very superior quality, testifies what can be done. It remains for large firms at Birmingham to take up this question in a manner hitherto not attained in England. . . Malleable steel will probably supersede the iron of Swedish and other brands for coach-building. . . Whitworth Steel has been used by some English coach-makers, but the price is far too high.—*G. A. Thrupp. Communicated to the Carriage Builders' Gazette*, 1878.

however, was not the case, for a whole elliptic spring was taken by me, haphazard from a heap, and placed under a heavy beam, which was brought down dead upon it several times, without it exhibiting the slightest deflection, but played well and easily.[1] This spring followed exactly the best English shape, and was doubtlessly made of good material.

The quality of French ironmongery, grade for grade, is not superior to English. The Exhibition articles of the best make, however, showed a high degree of finish.

As regards the smaller details of French carriage ironwork, there is a strong family likeness running through the whole. Economical distribution of parts has been well studied, and the stamping-press largely employed in their manufacture, diminishing the expense of production. There is no reason why stamped goods of this kind, provided they are made of good iron, should not be as serviceable as forged.

At a high-class coach factory, we were shown a good form of cricket-seat, hung on pivots, with a small projection below forming a safe stop.

The under-carriages having been put together in the rough wood and forged iron, are then taken apart, no burning or horse-shoe fit allowed, but proper cold fitting, the wood work smoothed and carved, the iron-work compassed, prick-punched and filed up true, and the whole is then refitted together for use. The axles were corrugated where the washer bears, to prevent the washer turning round and possibly rattling.

[1] A careful study of French springs satisfies me that they are lighter and rather shorter than ours; and, considering how much large and strong springs add to the weight of a vehicle, the French system seems the best.—*G. A. Thrupp. Communicated to the "Carriage Builders' Gazette,"* 1878.

In the French Carriage Department, M. Hannoyer exhibited an under-carriage in wood and iron. The price, with axles, springs, and wheels, complete, was £18; and his exhibits generally were of good quality.

M. Lemoine's fore-carriage for a pair-horse Landau, in wood and iron complete, without pole, was £6. Many of his goods were designed to be used in conjunction with india-rubber, for which he is a great advocate. Rubber axle-clips, to prevent vibration being transmitted to the springs, are one of his latest introductions.

M. Henon showed fore-carriages in wood and iron, 65f., 70f., and 80f. each. They were very simply constructed, which is, indeed, the case with most French fore-carriages. They seem to depend upon a very large perch-bolt to obtain steadiness, and dispense with half the wheel-plate, thereby not only simplifying the whole arrangement, but bringing the horses closer in to their work.

I do not pretend to judge of the relative merit of the English and French systems; but I saw several coachmen at the stables I visited, both English and French, who spoke about the complicated nature of the English plan, and said men could wash a French under-carriage in half the time they could an English one. It was natural for them to prefer that which gave them the least labour; but hints are sometimes useful, even from an outsider, and anything, tending to show in what the real or fancied superiority of modern French carriages consists, may prove of value.

M. Cluet had an effective arrangement for holding up shafts, dispensing with the necessity for a special shaft stop. It consists of an iron end to the shaft, with a slot-hole about an inch long, which takes a common bolt put through the futchells. The slot allows the shaft to be

pulled far enough out to clear the futchell, and, when turned upright, to drop down and rest on it, without allowing any fall back until lifted up again to the full extent of the slot-hole.

A French coach-builder showed a pole, with thin steel strengthening-plates top and bottom, fastened on with rivets put through slot-holes in the steel, which allowed the pole to play like a fishing-rod, while the plates go springing as required. The utility seems doubtful, but it is worthy of a practical test.

Some ironmongers exhibited full-sized carriages in the wood and iron, to show the application of their various patents and contrivances, many of which were interesting and new, while others were of respectable antiquity. Specially noticeable were the systems in use in France, for raising and lowering heads of open carriages, which were, more or less, copies or combinations of the English, and calling, therefore, for little remark, except that the spiral springs were brass, instead of steel. Not so well known, however, is the apparatus for supporting glass frames when up, of which the French make quite a feature, and which enables a Landau door to be opened with the glass up, thereby dispensing with lever-locks and their objectionable consequences.

There are five different systems to accomplish the same object; but the best, simplest, and cheapest, is of American origin, and consists of a metal slide, hinged at the corner of the garnish-rail, which, when turned up, secures the glass frame when the door is opened. It is easily fixed, has not an unsightly appearance, and takes up no more room than the thickness of a penny-piece. It is requisite, in such fixing, to pitch the whole arrangement towards the interior of the body, that the glass-frame, when up, should press slightly against the top of the door-framing, which

prevents any possibility of rattling. There was scarcely a Landau of any note in the French department unprovided with this convenience, which gives to a Landau door all the advantages of a Brougham door, to the comfort and convenience of the rider.

Some of the Russian iron-work was good. A Russian Drochsky, by Kruloff, Moscow, showed an unpainted iron split-perch, and C-springs with iron shackle-connection, made to lengthen and shorten, in place of leather braces; the whole being remarkably well forged and finished.

From Hungary, Kolber Brothers, Buda-Pesth, sent some good iron-work on several carriages. Considerable skill in the constructive details of small iron-work, both in design and execution, was also shown in an agricultural wagon with pole and bars for four horses, in the Austro-Hungarian Annex. Leather four-horse bar furniture was exhibited in several vehicles from Hungary.

The American iron-work was, as might be expected, remarkably light, compelling the coachbuilder to closely study the economical distribution of material in which the Americans so particularly excel; placing the strength where most required, and lightening the other parts to a degree which appears almost perilous to the English eye.

The carriage iron-work of other countries calls for no special remark from an ironmonger's point of view, otherwise than the slavish following of the French type in so many of the Continental exhibits, the Belgian department alone excepted, in which the iron-work, especially of the under-carriages, approaches more nearly the English forms.

INTERIOR FITTINGS OF CARRIAGES.

THE interior fittings of French pleasure-carriages are generally of a complete description, and of very varied styles. They are tastefully applied, not only in design, but also in colour. While in England we are content with covering them with leather, more or less matching the lining in colour, the French coach-builder uses also materials possessing self-colours that will harmonize with the prevailing hue.

In order to arrive at this result, he employs a variety of material. In addition to white and stained black ivory, the natural, unbleached, cream-tinted ivory is frequently used, the most extreme care being taken to have the various pieces of one tint, darker or lighter, as the case requires. This may seem a trifling refinement; but perfection, we are told, is attained by attention to trifles, and, indeed, the improvement in effect is so marked, that, once seen, no doubt can exist as to the value of such artistic care. The want of it was apparent in some well-executed ivory carvings of large-size, exhibited in the Pavilion of the Principality of Monaco, the proper artistic effect of which was marred by the abrupt changes of tint, caused by joining together pieces of ivory not properly selected.

If a darker or more pronounced colour than cream-ivory is required, then rhinoceros' horn is used, and ram's horn for warmer tints: this last greatly resembles

tortoise-shell in colour and mottling, and, when used in a brown lining, has a good effect.

These various hues were well displayed in the French carriages, and also in the special exhibits of MM. Ledoux, Delaselle, and other exhibitors.

Parcel-trays, with and without mirrors, bouquet and scent-bottle holders, memorandum-books and slates, sewing and embroidery cases, all separate, or more or less combined; cigar and card cases, in various forms; umbrella-holders, pull-to handles, &c., were shown in more or less artistic shapes and colours.

Some ebony fittings, elaborately inlaid with white, had a rich effect; while some ornamental carved-work, principally parcel, card, and cigar trays, by Boire Frères, were so bold and good in design, and so artistically executed, as to demand special attention, so superior were they to the common run of French carriage-fittings. Several of the most expensive ones were inlaid with mother-of-pearl, and mounted with richly-chased monograms and crests in metal. One of the best was marked as sold to the Queen of the Belgians, and looked worthy of its destination.

Some pull-handles in ivory, with coloured leather and silk in combination, deserved notice; as also did some composed of black buffalo-horn, ornamented with metal. Trays, cases, and handles of various combined colours of leather and silk, coarsely sewn with other contrasting colours, were a change, but scarcely an improvement.

English coach-makers assert, and with some show of reason, that, as they can get as much money for a carriage without interior fittings as with them, it is not worth while to throw money away on them; but if English cabinet and furniture makers had said the same, it is probable that thsoe trades would not have attained their present

high and flourishing condition. The production of artistic furniture has promoted, or, at any rate, greatly encouraged, an advanced judgment in artistic buyers, who appreciate while they buy, and stimulate producers to fresh efforts. It is highly probable that our leading cabinet-makers have helped to educate their customers, which might also be done by our leading coach-builders.

Englishmen have long prided themselves on the solidity and sound workmanship of their productions, while admitting the artistic superiority of the foreigner; but why not combine the two? Our foreign coach-building friends are trying to do so. They are learning to copy the accurate and solid workmanship and to use the good materials of the English, adding their own artistic execution; and the ultimate result may be a rising French, and falling English market.

On the opening night of the 1878-79 session of the Coach-builders' Drawing Classes[1] in George-Street, Oxford-Street, London, W., the Hon. Sec., in his introductory remarks, dwelt very forcibly upon the need for the coach-builder, especially the young coach-builder, to continually study and copy beautiful forms—not necessarily, or even by preference, forms connected with coach-building, but the beauties which abound in animate and inanimate nature, so as to fill the mind with a sense of beauty, and to convey it, by means of the hand, into whatever the hand finds to do, in order to lead to the gradual artistic improvement of English coach-making.

There is little to remark upon the foreign interior fittings of others than those of the French. The Belgians follow in the same lines, but in a bald and incomplete manner; and some other countries are worse than the English.

[1] For particulars of these classes, see Appendix.

COACH LAMPS.

IT is curious to note how their good taste, sense of fitness, and true ideas of proportion, desert the French when they deal with carriage-lamps. It must be admitted that the extremely strange shapes once prevalent with them have to some extent disappeared; but there is still much room for improvement. The best French coach-builders have, for some time, gradually improved their lamp shapes, mainly by copying the English; and some of those exhibited on the carriages in the Exhibition showed a marked advance.

In determining the proper lamp to be fitted to a given carriage, both English and foreign builders seem to consult tradition or fashion as often as usefulness.

Felton, in his treatise on Carriages (1744), says: "Lamps were originally used as necessary conveniences to a carriage, but are now principally used for ornament;" and, again: "The advantage of a clear, strong light is necessary to every carriage; in particular, for those travelling on bad roads. The utility of reflectors has been long experienced." These extracts show that coach-builders nearly one hundred and forty years ago had, to some extent, diverted the lamp from its original purpose, that of giving light—an example unwisely but too faithfully followed at the present day, except in the case of drags.

Lamps should, of course, be small-sized to suit small

vehicles; but there is a point at which this should stop, because below a certain size they become almost useless for giving light. In such a case they may be supposed to adorn, but, in fact, are mere excrescences, not being what they pretend to be, illuminators.

The Americans err greatly in this respect; and some English makers of light carriages follow their bad example.

Before discussing in detail the merits of the lamps exhibited in Paris, it will be useful to state the points of a good lamp, which may be assumed to be shape, material, workmanship, reflectors, and last, but not least, ventilation. Whatever the leading shape selected, the parts should be well proportioned, to produce an harmonious whole. Good material and workmanship speak for themselves; but ventilation deserves more than a passing word.

It is conceded to be a difficult task to properly ventilate a house, which remains in one position, and is not shaken about. It may readily be supposed, therefore, that to properly ventilate a carriage lamp, which is subject to vibration, constant change of position and temperature, is not an easy job, and entitles lamp-makers to an amount of consideration which they do not always receive from coach-makers. The proper principle on which to ventilate a lamp is, doubtless, to balance the inflow of the air with its outflow, in order to give just the quantity required to feed the light, without causing draught in excess. Rule of thumb, doubtless, should be abolished, and more exact methods of estimation take its place. But as the true laws of ventilation are matters of controversy, even among scientific men, it may be some time before a reliable basis is obtained to work upon; and thus much must be left to the judgment and ability of the lamp-maker. Good re-

flectors are essential, and, happily, there is no doubt as to the proper shape for reflectors, which is the curve described by a falling stone, which has been thrown in a horizontal direction, and which combines its original horizontal motion with a motion towards the centre of the earth (caused by attraction of gravitation), known as the parabolic curve. But having obtained this curve, by spinning the metal in a lathe, it is necessary to put the light in such a position as to obtain a proper focus; and here the requirements of shape and fashion step in to effectually spoil the light, by denying space sufficient wherein to obtain a proper focal length. The dial-lamps used on drags afford the best chance of getting the utmost amount of light obtainable from a lamp, by reason of their size. A drag-lamp, properly constructed, with inside and outside cones, and back reflectors of a true parabolic curve, is the perfection of carriage lamp-making; and those exhibited on Messrs. Brewster's drag in the Exhibition were really good examples of it, being not only well made, but also scientifically planned. The action of a parabolic reflector is to receive the radiating rays of light proceeding from the burning point, and to reflect them in parallel lines, the result being that every part of the reflector appears blazing with light, the technical term for which is "filling;" and Messrs. Brewster's, and some others of the proper Scotch design, "filled" well.

A splendid specimen of a reflector, in the French Department, designed, of course, for another purpose, was shown in the exhibit of Messrs. Barber and Fenestre, lighthouse-lantern makers. It was about five feet in diameter, and three feet deep to the centre of the light, which had a dioptric glass shield in front, the whole forming the most perfect combination that could be imagined for utilizing the whole of the light.

On the French carriages, the lamps were generally of suitable size; but the peculiar shapes of many were not agreeable to an English eye. Those shown by Messrs. Belvalette were well proportioned, and nearly approached to the English style.

Messrs. Kellner used coloured glasses in their Drag lamps, which looked out of place. The heads of the Victoria lamps were bevelled to suit the line of dash; but the idea was not new, having been already adopted in England. Their Brougham (£144), had ugly although well-made lamps.

M. Delorgueil showed good lamps on a large Brougham (£124) and on a Landau (£220).

In M. Renault's Landau (£164) and Brougham (£135), the lamps were of medium make and design.

M. Jeautard's omnibus-lamps, with guard and commode handle combined, were very well done and of good shape.

M. Binder's posting landau lamps were very large, of medium good shape, but the heads too heavy.

MM. Million, Guiet, et Cie.'s barouche lamps were extremely good, and remarkably well-proportioned; Victoria, ditto, but spoilt by an oval cone.

The Landaus exhibited in wood and iron by Messrs. Guyon, Huard, and Cie., and M. Devillard, were fitted with lamps showing clever workmanship.

The remainder calls for no special notice.

The Lampmakers' exhibits in the French section showed an abundance of good work, but great poverty of design. The lamps of Ducellier Frères were of medium quality, but of most incongruous and strange forms. The efforts at originality resulted in almost comicality; for instance, they showed a carriage-lamp in the shape of a dog's head, from the gaping mouth of which proceeded the rays of light!

Dress and state lamps, shown by other makers, were of good quality, but of conventional design, having little or no improvement in artistic embellishment or justness of proportion. Here, however, adverse criticism must stop; for, in the best class of French carriage-lamps, the materials and workmanship left generally very little to be desired. The glasses and inside metal of the best lamps were simply perfection. The glass was white, and clear, and well cut, and the inside metal burnished and fixed in a beautiful manner. The outsides were of accurate and painstaking workmanship. The plain backs, however, are not likely to show so good a light as the English style of sinking a reflector into the metal. As regards price, French lamps are about twenty per cent. dearer than English, class for class. The japanning seemed fairly good in appearance, and was seen, in some large workshops, to be baked in ovens with naked gas light, which is contrary to the usual practice in England; and it speaks well for the quality of the French lamp-varnish, that it comes out, under such injurious conditions, without "blooms," and so well as it does. The handi-work appears to be carried on in much the same way as in England; but in French and foreign lamp-making generally, the constructive details are allowed to be much more apparent in finished lamps. The tops and bottoms of the bodies are turned over to the backs in a clumsier-looking fashion than with us; but it gives the advantage of greater strength.

Some square lamps in the Exhibition had silver beads, square in section, which had a heavy appearance, and the further disadvantage of the sharp edges being likely to wear through rapidly. Others were fitted with bevelled plate-glasses, in three pieces, each set at a different angle from the others, which had the effect of causing the light to

play through the substance of the glasses, giving increased brightness, both in daylight and candlelight. The idea was, doubtless, taken from the dioptric glasses of lighthouse-lanterns. The extra expense was stated at about five shillings per pair.

Mons. Touissant, a metal-spinner for lamp-makers, exhibited reflectors, and other parts of inside metal, of excellent workmanship, and quite equal to the corresponding grade in England.

Some beautiful lamp-making tools were shown by M. Dartigues, Paris.

W. Jacobs and Son, Philadelphia, showed a Wagonette-Phaeton (£118), with the lamps gilt in a very fair manner, but too small to be of use. Some American lamps were good only in their shapes; but the prices of the vehicles were so low, as to preclude good lamps, or anything else, being put on; for instance, a Wagon, with two seats, with pole and car-work complete, £32 10s.; a four-wheeled Phaeton, £40; and a Trade-Wagon, with seats on elliptic springs, lever brake, apparently very well painted and got up, with pole and shafts, £20.

The Belgian lamps were poor affairs generally, while the Russians were perfectly barbarous. How any jury could have awarded prize medals to carriages bearing such productions, is wonderful.

On a carriage from Luxembourg there was a pair of excellently-made dial-lamps in the white, which looked as if they had been made by a good English workman, out of English tin,[1] so thoroughly English were they in style and make.

The lamps on carriages from Norway were somewhat "Brummagem" in look, although obviously of native make. The socket-irons were lined with leather, perhaps

[1] English sheet-tin has a much lighter appearance than foreign, which appears more like zinc.—*Robt. Burgess.*

to prevent vibration. Many of the lamps exhibited by other countries fitted badly in the sockets, which is a serious defect, as the rattling thereby induced must materially assist in wearing the lamps out quickly.

The carriage-lamps from Hungary were of good quality, and proportionable in shape, notably those in one of their Drags.

Viennese lamps also were very fair, but inferior to those from Hungary.

COACH AND HARNESS PLATING.

PLATING, as now practised, may be divided into Hard Solder, Soft Solder, and Electro.

Hard Solder is most expensive, and is only used where heavy wear is expected, such as for the loose rings of pole-ends, harness, kidney-links, and rings, &c. It may be roughly described as sheet silver brazed into the article with hard solder at a red heat.

Soft Solder is used for the plain wearing parts of carriage and harness mountings, and consists of sheet silver soldered in with soft solder at a lower temperature than hard soldering.

Electro-plating is used for cheap work, and for ornamental forms where soft or hard solder cannot be applied, and consists of silver in finely-divided powder, caused to solidify, in the act of depositing on the article, by a galvanic current passed through the solution containing the silver and the article.

The Hard Soldering process is almost peculiar to England, other countries usually employing polished iron or steel in place of hard solder. There was, therefore, no specimen of it in the foreign exhibits. The French showed what they called *forte soudure*, but which appeared really to be nickel and pyro-silver, neither of which approaches hard solder in wearing qualities, nor in difficulty and expense of execution.

Soft Solder, or close plating, is practised wherever

carriage-harness is made, and is now employed almost for that trade alone. In former times, spoons and table forks were close-plated, but electro-silvering has superseded work of that description.

There was a large display of soft plating in the Exhibition, and generally of a good quality, both in carriages and in platers' special exhibits, in which last, however, harness-fittings predominated. On a dress-carriage, there was an ornamental rail fixed entirely across the back, which served the double purpose of check-rings and holder-fastener, and was very well plated, having altogether a showy effect. Some excellent plating also was seen on the body-loops, step-swells, and check-rings of a coach in the show shop of M. Desouches, Champs Elysées. On visiting the platers' workshops, it was found that the processes in use were much the same as at home, which might be expected, seeing that soft plating, being essentially a handicraft, is not open to much improvement, and precludes altogether the use of machinery or machine tools, although I may be bold in making such an assertion after what has been done with the sewing-machine.

Among the platers, M. Robinot showed plated coach and harness furniture of good quality, but was principally notable for his attempts at novelties in buckles, not, however, very successful ones. It appears as difficult to design a new-shaped buckle as a new-shaped teapot. The new designs, other than chased, do not in any country show much advance, being mostly repetitions of old forms. M. Robinot exhibited a slight variation of an old invention, in a trace buckle with a revolving cranked bar, which, when turned, draws out (or should draw out) the tongue from the tongue-hole, thus releasing the trace from the horse. The French seem especially fertile in

contrivances for releasing fallen or runaway horses easily; but there was only one new contrivance shown, that of M. Glatard, who exhibited a full-sized model horse, harnessed complete, and travelling on wheels, which showed his patent system of instantaneously releasing a runaway horse by the driver from the driving-seat. It consists of a strap running along the horse's back, and down the collar, to the draft-eye. Pulling the strap lifts up a movable pin connecting the draft-eye and clip, releasing the clip and the attached trace; the shaft draws through the cup-tug, and the horse is free. The extra cost for the fittings for one horse is from 60f. to 70f. (say, about 55s.) It is very ingenious, but, like all pin arrangements for the same purpose, likely to fail under a cross strain. The plating in this harness was not good.

M. Ottenheim showed some good-shaped, well-plated curricle harness-fittings, the bars and stands being most noteworthy.

M. Copeau showed good horse-furniture, and some solid metal shoe riding stirrups, and well made bits and spurs in plated-silver and gold.

There were also exhibited some articles plated with aluminium gold alloys, which were remarkably good specimens of a difficult branch of soft plating. The French have long excelled the English in this particular; but in silver and brass the two nations are on a par.

It is only of late years that the French have properly understood the manufacture of German silver, having, up to very recently, got their supply from England. But, having fairly entered on the manufacture of "Maillechot," as they call it, they, with characteristic energy, sent a good show of it, with other plating metals, into the Exhibition; the Nickel Alloys, Foundry and Sheet Rolling Company being well represented.

The Belgian harness-plating was good, which was rather surprising, considering the inferior quality of their coach-plating.

The Russian plating was rough and poor, especially the harness-furniture.

A pair-horse harness from Finland (£14 8s.), had brass mountings of very medium quality, while the silver plating on some Carioles from Norway was beneath criticism.

The plating on the Hungarian carriages was very fair. A Victoria (sold for £80) had the axle-caps electro-plated all over, as were also the toe-plates on a Drag, which gave it a curiously spotted appearance.

The silver-plating on the Austrian carriages was creditable, and above the medium quality.

The American silver-plating on carriages, as a whole, was by no means good, but excellent on the special exhibits of harness-furniture, some gilt carriage-furniture being also well done.

The show of Canadian harness-plating was large, and fairly good in quality, only in one case, however, approaching real excellence.

But the most marvellous thing in the way of plating, in the whole Exhibition, was the enormous quantity of Nickel-plating, in nickeled beading, lamps, caps, and handles, on one of the French carriages, and nickeled brake-handles on many of them. One French coach-builder showed pole-ends, chains, and bar-work in great variety, all nickeled.

In the Maritime Department, there was a pleasure-boat, with the tiller-handle, rowlocks, and decorative details of metal-work, nickeled; French, English, and other sewing-machines, nickeled. Among the American exhibits were nickeled chisels, hammers, planes, choppers, and tools of

COACH CHASING.

To produce Heraldic Chasing requires two workmen; the embosser, who works up the die, out of a plate of metal, and the chaser, who strikes up from it a shell of thin sheet, which he fills with soft metal, and then tools up to greater finish.

It is obvious that striking from a die cannot allow any very great depth to be obtained, and entirely prevents undercutting, which is equivalent to denying an artist shadows in his picture.

In what may be called chasing proper, a modelled pattern is first made, next cast from, and the cast finally tooled by the chaser, requiring three workmen to be employed on the job.

Good patterns in dies are of the utmost value in manufacturing chased work, and high artistic skill is required for their production; but such skill is at a premium, and therefore commands high wages; and that is where the shoe pinches in coach and harness chasing.

Chasers who use their tools badly can soon spoil work from a good pattern; but even good ones will only put an amount of labour into the article that will pay them for their skill: a long course of cheap chasing, on the contrary, deteriorates the artistic faculties, and allows the work to degenerate into chopping.

It is scarcely, therefore, to be expected, under existing

circumstances, that chasing on carriages and harness should exhibit high qualities.

The influence of fashion, which decrees plainness in metal appointments, has also, by cutting off the demand, reduced the supply of heraldic chasers, and the price paid to those who remain prevents any great degree of excellence. Therefore calling some of the coach-chasing exhibited in the Exhibition good, means comparatively good carriage-chasing.

No slur is hereby meant to be cast on heraldic chasers, for the capacity to produce really good chasing is probably possessed by many of them, but it lies dormant for want of public encouragement.

No country made a large show in this branch of the work; but France was the largest, and principally in the harness division. The majority was of good design and quality, and a small portion excellent; but this was evidently the work of pattern-makers and chasers not habitually employed in harness chasing.

A beautifully-designed foliage scroll-ornament for a coach roof, shown by M. Armandias (prize £40), illustrated very clearly the value of a good pattern well chased before casting, as a close inspection showed that good chasing had been put into it after leaving the caster's hands; but a small quantity being well distributed, had sufficed to give an elegant effect. This pattern was doubtless the work of somebody not working in the trade.

In the French bronze department, there was a very interesting collection of ornamental and figure casts untouched from the moulds, even the gits and runners being left on. They were fine specimens of the founder's art, and might give English casters some useful hints.

There were also some marvellously-cast and chased vases from Japan and China, showing such intricacy of

design, that it must have been impossible to cast them in the ordinary way by moulding off a pattern in sand; they must have been modelled in wax, and the wax embedded in sand, and run out by heat, and the molten metal then run into the vacant space. The chasing was fairly skilful, and most minutely and patiently elaborated.

The chasing in the Indian palanquins and elephant-trappings was as rude as it was elaborate, and bore no comparison with European.

There was a small show of chased work in the Canadian Carriage Department. It was of a medium quality, and seemed to be of English make. The Belgian Harness furniture was good: the chased parts were deep, and well done.

The remainder of the coach chasing was uninteresting; but the subject of chasing should not be left without a passing reference to the surpassing excellence of the handiwork in the exhibits of Messrs. Teffany & Co., of New York.

ROBERT BURGESS.

45, *James Street, Oxford Street, London, W.*

NOTE BY THE EDITOR.

WOOD CARVING.—The elegant modern system of light carriages does not admit of ornamentation by carving; but, in the carving of carriages for state or ceremonial purposes, the foreigner excels the English workman. In the hope of restoring this neglected industry, a school is in course of formation in London. A copy of the prospectus is given given in the appendix, No. 5.

APPENDIX.

APPENDIX.

No. I.

IMPORTATION & EXPORTATION OF CARRIAGES.

In the Artizans' Reports mention is made of the probable loss of the British exportation trade of carriages. The subject is an important one, but no authentic document has hitherto been published to justify or disprove the statement.

By favour of the Right Honourable Sir Charles B. Adderley, M.P., the Editor is enabled to publish the following Official Return, which he prints for the information of the trade, with the observation appended thereto:

> "*Quantities and value of Road Carriages Imported and Exported into and from the United Kingdom in each of the years* 1856, 1866, *and* 1870:

Years.	Imports.		Exports.	
	Quantities.	Value.	Quantities.	Value.
1856	No. ...	£4,022	No. 1,467*...	£143,268*
1866	,, ...	8,396	,, 798 ...	70,698
1870	,, ...	12,102	,, 686 ...	57,657

* Including Railway Carriages.

> "I regret to be unable to furnish you with any information "on this subject for any year subsequent to 1870, as the Imports "and Exports of Road Carriages have not been separately "distinguished since that time, being now classed in the Cus- "toms' Accounts as 'Goods manufactured unenumerated.'"

The alarm, therefore, is fully justified. We are not only losing the exportation of carriages, but the foreign manufacturer is establishing himself in our home market. The value of carriages imported into

No. I.—*Continued.*

Great Britain in 1856, which was £4,022, had increased in 1870 to £12,102; and our exportation (after deducting the value of railway carriages), which was about £70,000 in 1856, had fallen in 1870 to £57,657.

On making a mercantile estimate of the gross diminution of receipts from such untoward results, the trade must have suffered to the amount of above £500,000.

No. II.

LABOUR EMPLOYED IN THE CONSTRUCTION OF A FIRST-CLASS CARRIAGE.

THE following list of persons engaged in the trade of Coach-making who are entitled to compete for the prizes offered annually by the Worshipful Company of Coachmakers and Coach Harness Makers of London, shows the vast amount of mechanical skill employed in a Carriage Manufactory, without reference to the many trades that supply the Materials to be worked into form and shape by the Coach Artizans:—

CLERKS
FOREMEN
ASSISTANT FOREMEN
COACH BODY MAKERS
COACH CARRIAGE MAKERS
COACH CARVERS
COACH JOINERS
COACH SPRING MAKERS
COACH SMITHS
COACH VICEMEN
COACH HERALD PAINTERS
COACH PAINTERS
COACH WHEELERS
COACH TRIMMERS
COACH HARNESS MAKERS
COACH LACE MAKERS
COACH LAMP MAKERS
COACH PLATERS
COACH CHASERS
COACH SAWYERS
COACH LABOURERS

No. III.

AWARDS IN FAVOUR OF BRITISH AND BRITISH COLONIAL CARRIAGE BUILDERS.

PARIS EXHIBITION, 1878.

THE DISTINCTION OF

"CHEVALIER OF THE LEGION OF HONOUR"

CONFERRED UPON

JOHN WINPENNY PETERS, ESQ.,

Of the Firm of T. PETERS AND SONS, *London.*

OTHER AWARDS.

NAME.	ADDRESS.	AWARDS.
ALDEBERT, J.	57, Long Acre, London	Silver Medal
BAGSHAW, F. W.	Sheffield Bicycle Works, Hill Foot, Sheffield	Hon. Mention
BRISTOL WAGON WORKS Co., Limited	Lawrence Hill, Bristol.. .	Bronze Medal
BUSH, J., AND CO.	200, Camberwell Road, London	Hon. Mention
COCKSHOOT, J., AND CO. ...	New Bridge Street, Manchester	Gold Medal
COOPER, J. C.	111, Long Acre, London... ...	Bronze Medal
GOLD, H.	82, Long Acre, London	Hon. Mention
HARRISON, R., AND SON ...	1, Stanhope Street, Euston Road, London	Silver Medal
HAYES, H., AND SON	Stamford	Hon. Mention
HAYNES AND JEFFERIS ...	Spon Street, Coventry	Bronze Medal
HENDERSON, J., AND CO. ...	60, North Street, Glasgow ...	Silver Medal
HOLLAND AND HOLLAND ...	254, Oxford Street, London ...	,,
HOLMES, H. AND A.	Margaret Street, London	,,
HOPTON AND SONS	67, George Street, Euston Square, London	Bronze Medal
HOPTON, T. W.	Collingwood Works, Broadwall, London	Hon. Mention
HOWES AND SONS	Chapel Field, Norwich	,,
HOWES, H. W.	Prince of Wales's Road, Norwich	,,
JULIAN, H.	Bow Street, Bolton	Bronze Medal

No. III.—AWARDS IN FAVOUR OF BRITISH AND COLONIAL CARRIAGE BUILDERS.—*Continued.*

NAME.	ADDRESS.	AWARDS.
KING, W.	Battlesden Carriage Works, Leighton Buzzard	Hon. Mention
LAURIE & MARNER, Limited	313, Oxford Street, London ...	Gold Medal
MCNAUGHT AND SMITH ...	Worcester	Silver Medal
MULLINER, F.	59, Great Charlotte Street, Liverpool	,,
MULLINER, H.	Leamington Spa	Bronze Medal
OFFORD, J.	79, Well Street, Oxford Street, London	,,
PETERS, T., AND SONS ...	Park Street, London...	Silver Medal
PLOWRIGHT, J.	26, High Street, King's Lynn, Norfolk	Hon. Mention
ROBERTS, J.	6, Cavendish Street, Stratford Road, Manchester	,,
ROCK AND HAWKINS	Hastings	Bronze Medal
SMITH, STARLEY, AND CO., Limited	Trafalgar Works, Coventry ...	Hon. Mention
SURREY MACHINIST CO. ...	85, Blackman St., Borough, London	Bronze Medal
THOMPSON, C.	33, Newington Butts, London...	,,
THORN, C.	Norfolk Carriage Works, Norwich	Silver Medal
WARD, J.	Saville House, 5 and 6, Leicester Square, London	,,
WINDOVER, C. S....	32, Long Acre, London	Bronze Medal
WILSON AND CO.	144, High Holborn, London ...	Hon. Mention
WYBURN AND CO.	121, Long Acre, London... ...	Silver Medal
BRITISH COLONIES.		
STEVENSON AND CO.	Victoria, Australia	Silver Medal
DEW AND CO.	Canada	Bronze Medal
PLUMMER AND SON	,, ...	,,
WOLF, T. M....	,, ...	,,
ARMSTRONG, T. B.	,, ...	Hon. Mention
BEGG, A.	,, ...	,,
GANANOGUE SPRING CO. ...	,, ...	,,
GUELPH CARRIAGE GOODS CO.	,, ...	,,
RAMSAY, W.	,, ...	,,
ROBINSON, G. W....	,, ...	,,
SEMMENS, J.	,, ...	,,
WOOD, L.	,, ...	,,

No. IV.

LONDON SPECIAL DRAWING CLASS

FOR FOREMEN, WORKMEN, AND APPRENTICES EMPLOYED IN THE MANUFACTURE OF CARRIAGES,

ST. MARK'S BUILDINGS, GEORGE STREET,

GROSVENOR SQUARE, LONDON.

The teaching and demonstration includes FREE-HAND and MODEL DRAWING, to form and cultivate taste and facilitate the accurate copying of objects of any kind; GEOMETRICAL DRAWING as applied to Carriages; TECHNICAL INSTRUCTION as applied to the Designing of Carriages, and fixing the proper position and shape of their different parts.

THE WINTER SESSION COMMENCED 1st OCTOBER, 1878.

PATRONS AND SUPPORTERS:

THE COACHMAKERS' COMPANY.

The REV. J. W. AYRE, Vicar of St. Mark's Parish.

Carriage Builders and Trades Supplying Carriage Materials.

Messrs. LAURIE & MARNER.
,, THOMAS PETERS & SONS.
,, J. ROGERS & SONS.
Messrs. WOODALL & SON.
,, HOOPER & CO.
,, THRUPP & MABERLY.

Mr. J. BARLOW, Coach Plater.

COMMITTEE OF MANAGEMENT:

Chairman—Mr. G. N. HOOPER.

REPRESENTATIVES OF VARIOUS BRANCHES.

J. R. W. LAKE, Foreman.
S. T. MALLARD, J. W. SORRELL, J. PAMMANT, } Bodymakers.
THOS. COWARD, Smith.
W. SIMPSON, W. SMITH, } Painters.

Hon. Secretary—Mr. G. A. THRUPP, 269, Oxford Street.

Assistant Hon. Sec.—Mr. THOS. COWARD.

TERMS:

ADULTS { 10s. the Course. 2s. the Month. 4d. each Lesson.
APPRENTICES { 5s. the Course. 1s. the Month. 2d. each Lesson.

Names of Students received by the Assistant Secretary each time the Class meets. Students are strongly advised to enter at the beginning of the Course.

NOTE.—Although the Class has been only instituted two years, above seventy Workmen have enrolled themselves as Students in the above Session, commencing 1st October, 1878.—*Editor.*

No. V.

NATIONAL SCHOOL OF WOOD CARVING,

3, SOMERSET STREET, OXFORD STREET, LONDON, W.

WITH a view of encouraging the Art of Wood-Carving in this country as a branch of the Fine Arts, a School, under the above title, has been opened, as an experiment, for the teaching of Wood-Carving.

The Provisional Committee have secured the services of that eminent Florentine artist, Signor Bulletti, to take charge of the classes.

Premises suitable for the purpose have been taken, and Messrs. Gillow and Co., in aid of this national object, have liberally made themselves responsible for the rent, and will supply the necessary plant and models, and also a sufficient amount of work for a year, and it is hoped that a permanent School of Art Wood-Carving may eventually be established.

The hours of attendance are—

For Day Students, from 10 to 1 and from 2 to 5.
For Evening Students, from 7 to 9.

Students are admitted on the following terms :—

Day Students, £2 a month, or £5 a quarter.
Evening Students, 15s. a month, or £2 a quarter.

Students must provide their own tools, and work done in the School cannot be taken away.

The Council of the Society of Arts, aided by funds placed at their disposal by the Worshipful Company of Drapers for promoting Technical Education, select and pay the fees for six months of four Day Students, who must undertake to attend during the whole of that time from 10 to 1 and 2 to 5 *at least;* and of four Evening Students, who must attend from 7 to 9 *at least.* Candidates

No. V.—*Continued.*

for these Studentships must have passed the 2nd Grade Art Examination of the Science and Art Department in Freehand Drawing, at least. Those who have some knowledge of Wood-Carving, or have passed in the other subjects at the 2nd Grade Art Certificate, or in Drawing from the Antique and the Figure, Architectural Drawing, or Designing, or in Modelling, will be preferred. For these Studentships there are still some vacancies.

Further particulars, as regards both paying and non-paying Students, may be had on application to the Secretary of the Society of Arts, Adelphi, London, W.C., or at the School.

January, 1879.

No. VI.

SCIENCE AND ART DEPARTMENT

OF THE COMMITTEE OF COUNCIL ON EDUCATION.

SCHOOLS OF ART.

NATIONAL ART TRAINING SCHOOL, SOUTH KENSINGTON, LONDON, S.W.

THE courses of instruction pursued in this School have for their object the systematic training of teachers, male and female, in the practice of Art and in the knowledge of its scientific principles, with a view to qualifying them as teachers of Schools of Art competent to develop the application of Art to the common uses of life, and to the requirements of Trade and Manufactures. The instruction comprehends the following subjects :—Freehand, Architectural and Mechanical Drawing ; Practical Geometry and Perspective ; Painting in Oil, Tempera, and Water Colours ; Modelling, Moulding, and Casting. The classes for Drawing, Painting, and Modelling, include Architectural and other Ornament, Flowers, Objects of Still-Life, &c., the Figure from the Antique and the Life, and the study of Anatomy as applicable to Art.

Further information as to the above School may be obtained on personal application to the REGISTRAR at the SCHOOL, or by letter addressed to the Secretary, Science and Art Department, South Kensington, London, S.W.

THE SOUTH KENSINGTON MUSEUM, as a Storehouse for the United Kingdom, lends books and objects to all Schools of Art. In connection with the Science and Art Department, Schools of Art are at present established in the following places, and application for particulars as to local schools should be made to the schools in each district :—

No. VI.—*Continued.*

Name of School of Art, Town, or District.	No. of Students under Instruction.	Name of School of Art, Town, or District.	No. of Students under Instruction.
Aberdeen	334	Dorchester	89
Andover	53	Dover	171
Barnsley	131	Dublin (Metropolitan)	439
Barnstaple	35	„ (Queen's Institute)	127
Barrow-in-Furness	115	Dudley	152
Bath	342	Dumfries	73
Belfast, with 2 branches	473	Dundee	522
Berwick-on-Tweed	90	Durham	154
Bideford	83	Edinburgh, male	487
Birkenhead	266	„ female	306
Birmingham, with 5 branches	1,244	Elgin	63
Bolton	176	Exeter	284
Boston	118	Farnham and branch	124
Bradford (Ch. Inst.)	281	Frome	63
„ (Gram. Sch.)	258	Glasgow and branch	1,167
„ (Mech. Inst.)	194	Gloucester	236
Bridport	148	Halifax	120
Brighton	423	Hanley	210
Bristol	349	Hartlepool (West)	116
Bromsgrove	95	Hastings and St. Leonards	146
Burslem	146	Huddersfield	160
Cambridge	151	Hull	261
Cardiff	95	Inverness	73
Carlisle	167	Ipswich	283
Carnarvon	20	Keighley	171
Cheltenham	168	Kendal	100
Chester	108	Keswick	61
Cirencester	132	Kidderminster	161
Clonmel	52	Kilmarnock	132
Coalbrookdale, with branch	89	Lancaster	253
Cork	239	Leamington	177
Coventry	173	Leeds	667
Croydon	166	Leicester	304
Darlington	158	Lewes	87
Derby	306	Limerick	107
Devizes	48	Lincoln	277
Devonport	152	Liverpool, North District, Shaw Street, and branch	565
Dollar	131		
Doncaster	40		

No. VI.—SCHOOLS OF ART—*Continued.*

Name of School of Art, Town, or District.	No. of Students under Instruction.	Name of School of Art, Town, or District.	No. of Students under Instruction.
Liverpool S. Dist. Mount-st., with branch	369	Rotherham	75
Londonderry	79	Ryde	180
Macclesfield	154	St. Albans	50
Manchester (Royal Inst.)	417	Salisbury	112
,, (Grammar School)	847	Selby	60
Mansfield	78	Sheffield and branch	399
Metropolitan Schools :—		Shipley (Salt School)	108
Bloomsbury (Female)	238	Shrewsbury	120
City and Spitalfields	202	Southampton (Hartley Inst.)	122
Islington	95	,, (Phil. Hall)	153
Lambeth	420	Stafford	94
North London	269	Stirling	122
St. Martin's	220	Stoke-upon-Trent	159
St. Thomas Charterhouse	198	Stourbridge	145
South Kensington	878	Stroud	110
Stratford	123	Sunderland	214
West London—	563	Swansea	159
Westminster, St. Mary's S.	69	Taunton	93
Westminster R. Archl. Mus.	110	Tavistock	116
Middlesboro' and branch	193	Trowbridge	62
Newcastle-under-Lyme	114	Truro	48
Newcastle-upon-Tyne (Lib. pl)	324	Wakefield	121
,, ,, (Corpo. St.)	250	Walsall (Station Street)	80
Newport, Mon.	92	,, (Athenæum with branch)	131
Northampton	230	Warminster	25
Norwich	178	Warrington	180
Nottingham	483	Watford	94
Oxford	197	Weymouth	100
Paisley	107	Winchester	118
Penzance	128	Wolverhampton	189
Perth	204	Worcester	183
Plymouth	128	Yarmouth (Great) and branch	263
Portsmouth	228	York	141
Preston	160		
Reading	113		
Redditch	84	Total No. of Schools, 144	29,505

In addition to the students taught at the above Schools of Art, 29,579 students in 910 Art Classes, and 549,010 children at 3,767 Elementary Day Schools received instruction in drawing in the year 1877.

No. VI.—SCHOOLS OF ART—*Continued.*

Metropolitan District Schools of Art are now established at the following places:—

1. THE FEMALE SCHOOL OF ART, 43, Queen Square, Bloomsbury.
2. CITY AND SPITALFIELDS, New Bishopsgate Ward Schools.
3. ST. THOMAS CHARTERHOUSE, Goswell Road.
4. ST. MARTIN'S-IN-THE-FIELDS, Castle Street, Long Acre.
5. LAMBETH, Miller's Lane, Upper Kennington Lane.
6. WEST LONDON, 204, Great Portland Street.
7. NORTH LONDON, Sandringham Road, Kingsland.
8. ISLINGTON, 21, Cross Street.
9. STRATFORD, Maryland Point.
10. WESTMINSTER, St. Mary's, Hyde Place, Vincent Square.
11. WESTMINSTER, Royal Architectural Museum.

These Schools are open in the evening from 7 to 9, and there are Female Classes at most of them. Applications for admission, prospectuses, or any other information, should be made at the Schools in each district.

There is an Annual Examination for Prizes in all the Schools, and a National Competition.

By order of the Committee of Council on Education.

NORMAN MACLEOD.

No. VII.

SOCIETY OF ARTS, LONDON.

NUMBERING NEARLY FOUR THOUSAND MEMBERS.

THE SOCIETY OF ARTS was founded in 1754, and incorporated by Royal Charter in 1847, for "The Encouragement of the Arts, Manufactures, and Commerce of the Country, by bestowing rewards for such productions, inventions, or improvements as tend to the employment of the poor, to the increase of trade, and to the riches and honour of the kingdom; and for meritorious works in the various departments of the Fine Arts; for Discoveries, Inventions, and Improvements in Agriculture, Chemistry, Mechanics, Manufactures, and other useful Arts; for the application of such natural and artificial products, whether of Home, Colonial, or Foreign growth and manufacture, as may appear likely to afford fresh objects of industry, and to increase the trade of the realm by extending the sphere of British commerce; and generally to assist in the advancement, development, and practical application of every department of science in connection with the Arts, Manufactures, and Commerce of this country."

The Session of the Society lasts from November to June, and during that time meetings are held every Wednesday for the reading of papers and the discussion of subjects connected with the objects of the Society. There are also three sections—for the discussion of Indian, African, and Chemical topics. Six meetings are held during the Session in each Section. Courses of lectures are also given, some of which bear the name of Dr. Cantor, their founder. The Society publishes a weekly journal, which is sent free to the members. It also conducts Examinations, which now comprise the following divisions:—1. Commercial Knowledge. 2. Domestic Economy. 3. Fine Arts applied to Industry. 4. Music. 5. Technology of Arts and Manufactures. 6. Elementary.

AMONG THE SUBJECTS IN THE TECHNOLOGICAL DIVISION COACH-BUILDING IS INCLUDED.

Further particulars as to the Society can be had on application to Mr. P. Le Neve Foster, the secretary, at the Society of Arts House, John Street, Adelphi, London, W.C.

1877-1878.

*** *The Master of the Worshipful Company of Coachmakers and Coach Harness Makers of London, offers his best thanks to the Artisan Reporters for the zeal and ability with which they have discharged the duty entrusted to them; and he returns his sincere thanks to* G. N. HOOPER, ESQ., *of Victoria Street, Westminster, and to* G. A. THRUPP, ESQ., *of Oxford Street, London, for their aid and assistance while this work was in course of publication; and to the latter for placing at the Editor's disposal the Supplemental Report on the Exterior Iron-work Fittings, Interior Fittings, Lamps, Chasing, and Plating of Carriages.*

PARTICULARS as to the Freedom and Livery of the Worshipful Company of Coachmakers and Coach Harness Makers of London may be obtained by writing to the Clerk of the Company. Mr. H. NICHOLSON, The Coachmakers' Hall, Noble Street, Aldersgate Street, London, E.C.; or 25, College Hill, London, E.C.

A CHEAP EDITION of this work, in cloth, suitable for Presentation to Merchants supplying Materials to the Trade, Foremen, Workers, and others interested in Coach-building, is now published. Price 5*s*.

ADDENDA.

A LIST

OF THE

MASTER, WARDENS, ASSISTANTS,

AND

LIVERY

OF THE

WORSHIPFUL COMPANY

OF

COACHMAKERS AND COACH-HARNESS MAKERS OF LONDON.

1878—1879.

HALL - NOBLE STREET, ALDERSGATE STREET, E C.

LONDON.

1879.

THE COURT.

1878-1879.

Date of Election on the Court.

MASTER.

Sept. 2, 1872. Mr. FREDERIC CHANCELLOR, 8, Finsbury Circus, London.

SENIOR WARDEN.

Sept. 9, 1875. Mr. CHARLES DYER FIELD, North Frith, Forest Hill, Kent.

RENTER WARDEN.

July 12, 1877. Mr. FREDERICK JAMES BLAKE, Wotton-under-Edge, Gloucester, and 57, Mansfield Road, Highgate, London.

JUNIOR WARDEN.

Jan. 24, 1878. Mr. FREDERICK THORN, 19, Great Portland Street, Oxford Street, London.

ASSISTANTS ON THE COURT.

1878-1879.

Date of Election on the Court.	
Oct. 26, 1826.	Mr. HENRY POWELL, Herne Hill, Surrey.
June 18, 1835.	Mr. JAMES SCOLES, 8, Oakley Square, Hampstead Road, London.
Dec. 10, 1835.	Mr. GEORGE CHANCELLOR, Chessington Hall, Chessington, Surrey.
Dec. 5, 1850.	Mr. JOHN WINPENNY PETERS, 53, Park Street, Grosvenor Square, London.
Sept. 16, 1852.	Mr. WILLIAM WINPENNY PETERS, Upper George Street, Portman Square, London.
Dec. 7, 1854.	Mr. JOSEPH PETERS, 53, Park Street, Grosvenor Square, London.
June 7, 1855.	Col. JAMES PETERS, 25, Connaught Terrace, Hyde Park, London.
June 2, 1859.	Mr. THOMAS HOW, 12, Fenchurch Street, London.
June 5, 1862.	Mr. WILLIAM THOMAS THORN, 19, Great Portland Street, Oxford Street, London.
June 5, 1862.	Mr. JAMES HESLOP POWELL, Mayfield, Leigham Court Road, Streatham, Surrey, and 33, Cornhill, London.
March 3, 1864.	Mr. CHARLES JAMES BENNETT, 61, Mark Lane, London.
March 3, 1864.	Mr. SAMUEL GLOVER, 1, Dean Street, Soho, London.
June 2, 1864.	Mr. JAMES ROBINSON, Masbro' Lodge, Southey Road, New Wimbledon, Surrey.
March 1, 1866.	Mr. JOHN FRANCIS WOODALL, 28, Orchard Street, London.

ASSISTANTS ON THE COURT—*Continued.*

Date of Election on the Court.	
June 7, 1866.	Mr. HERBERT MOUNTFORD HOLMES, London Road, Derby, and 38, Margaret Street, Cavendish Square, London.
Sept. 13, 1866.	Mr. JOHN HOLLAND, 107, Park Street, Grosvenor Square, London.
Sept. 12, 1867.	Mr. GEORGE NORGATE HOOPER, 113, Victoria Street, London.
Sept. 12, 1867.	Mr. WILLIAM HOOPER, 113, Victoria Street, London.
June 3, 1869.	Mr. CHARLES GREENWOOD, 17, Highgate Road, London.
March 17, 1870.	Mr. CHARLES SAUNDERSON, Stanmore Lodge, Kilburn, Middlesex.
Feb. 7, 1873.	H.R.H. THE DUKE OF EDINBURGH, K.G., Clarence House, London.

HONORARY CHAPLAIN.

The Revd. REGINALD PERCY DANIELL-BAINBRIDGE, 2, Ashburne Villas, Harrowgate, Yorkshire, and Chislehurst, Kent.

HONORARY ARCHITECT AND SURVEYOR.

MR. FREDERIC CHANCELLOR, 8, Finsbury Circus, London.

CLERK AND SOLICITOR.

MR. HENRY NICHOLSON, Coachmakers' Hall, Noble Street, and 25, College Hill, London, E.C.

BEADLE.—W. R. HUGHES, Coachmakers' Hall, Noble Street, London, E.C.

THE LIVERY.

1878-1879.

Each Gentleman against whose name an * is prefixed is a Member of the Court of Assistants.

DATE OF ADMISSION.	NAME.	ADDRESS.
* Feb. 14, 1822	Mr. HENRY POWELL	Herne Hill, Surrey
* Sept. 1, 1824	„ JAMES SCOLES	8, Oakley Square, Hampstead Road, London
* Feb. 16, 1826	„ GEORGE CHANCELLOR	Chessington Hall, Chessington, Surrey
Sept. 1, 1836	„ JOHN EDWARD HAWKINS PAYNE	
Dec. 8, 1836	„ THOMAS PEARCE	1, Sutherland Place, Pimlico, London
* Oct. 26, 1837	„ JOHN WINPENNY PETERS	53, Park Street, Grosvenor Square, London
* Dec. 7, 1843	„ WILLIAM WINPENNY PETERS	Upper George Street, Portman Square, London
* Dec. 7, 1843	„ JOSEPH PETERS	53, Park Street, Grosvenor Square, London
* Dec. 7, 1843	Colonel JAMES PETERS	25, Connaught Terrace, Hyde Park, London
Jan. 23, 1845	Mr. FREDERICK STOCKEN	Halkin Street, Belgrave Square, London
Jan. 23, 1845	„ EDWARD IVES FULLER	Bridge Street, Northampton
* Oct. 28, 1847	„ THOMAS HOW	12, Fenchurch Street, London
* June 16, 1851	„ WILLIAM THOMAS THORN	19, Great Portland Street, Oxford Street, London
* Dec. 1, 1853	„ JAMES HESLOP POWELL	Mayfield, Leigham Court Road, Streatham, Surrey, and 33, Cornhill, London
* Dec. 5, 1860	„ CHARLES JAMES BENNETT	61, Mark Lane London
* June 7, 1861	„ SAMUEL GLOVER	1, Dean Street, Soho, London

* Sept. 1, 1862	Mr.	JAMES ROBINSON	Masbro' Lodge, Southey Road, New Wimbledon, Surrey
* Sept. 1, 1862	„	JOHN FRANCIS WOODALL	28, Orchard Street, Portman Square, London
* Sept. 1, 1862	„	HERBERT MOUNTFORD HOLMES	London Road, Derby, and Margaret Street, Cavendish Square, London
* Sept. 11, 1862	„	JOHN HOLLAND	107, Park Street, Grosvenor Square, London
* June 4, 1863	„	GEORGE NORGATE HOOPER	113, Victoria Street, London
* Sept. 1, 1863	„	WILLIAM HOOPER	113, Victoria Street, London
* Sept. 1, 1863	„	CHARLES GREENWOOD	17, Highgate Road, London
* Sept. 1, 1863	„	CHARLES SAUNDERSON	Stanmore Lodge, Kilburn, Middlesex
* Mar. 3, 1864	„	F. CHANCELLOR (Hon. Architect)	8, Finsbury Circus, London
* Mar. 3, 1864	„	CHARLES DYER FIELD	North Frith, Forest Hill, Kent
Mar. 3, 1864	„	WILLIAM HENRY TAYLOR	Hounslow, Middlesex
* June 2, 1864	„	FREDERICK JAMES BLAKE	Wotton-under-Edge, Gloucester, and 57, Mansfield Road, Highgate Road, London
* Sept. 15, 1864	„	FREDERICK THORN	19, Great Portland St., Oxford Street, London
* Dec. 8, 1864	„	WILLIAM COHAM TURNER	41, Belsize Road, St. John's Wood, London
Mar. 2, 1865	„	GEORGE ATHELSTANE THRUPP	269, Oxford Street, London
Mar. 2, 1865	„	CHARLES HARRIS WOODALL	28, Orchard Street, Portman Square, London
Mar. 2, 1865	„	HENRY ROGERS	56, South Audley Street, London
June 1, 1865	„	ROBERT ALFORD	Fair Lawn, Jeffrey's Road, Clapham Rise, Surrey
June 1, 1865	„	THOMAS PACKWOOD ALDER	8, Grosvenor Villas, Loughboro' Park, Brixton, Surrey
June 1, 1865	„	CHARLES THOMAS BARTLETT	173, Adelaide Road, St. John's Wood, London

1878-1879.—LIVERY—*continued.*

DATE OF ADMISSION.	NAME.	ADDRESS.
June 1, 1865	Mr. GEORGE MABERLY	269, Oxford Street, London
June 1, 1865	„ JOSEPH STOHWASSER	39, Conduit Street, Bond Street, London
June 1, 1865	„ WILLIAM BRISTOW	25, Laurence Pountney Lane, London, and High Street, Greenwich, Kent
June 1, 1865	„ JOHN TURNER	Union Bank Chambers, Chancery Lane, London
June 1, 1865	„ ALFRED AURELIUS CLARK	Severn Lodge, Addison Road, Kensington, and King's Cross, Battle Bridge, London
June 1, 1865	„ EDMUND BOULNOIS	King Street, Portman Square, London
Sept. 1, 1865	„ ALEXANDER THORN	45, Winchester Terrace, Oakley Street, Chelsea, London
Sept. 14, 1865	„ GEORGE WILLIAM HILLYER	Hurstborne Tarrant, Andover, Hants
Mar. 1, 1866	„ HENRY MULLINER	2, Baker Street, London, and Leamington, Warwickshire
June 7, 1866	„ WILLIAM BERIAH BROOK	1, New Inn, Strand, London
Sept. 1, 1866	„ JOHN WILLIAM LEE	
Dec. 6, 1866	„ CONRAD CLUNIE DUMAS	St. Clement's House, St. Clement's Lane, London
Mar. 7, 1867	„ JOSEPH FORDHAM STARKEY	18, Lancaster Road, Belsize Park, Middlesex
June 6, 1867	„ CHARLES FREDERICK WASSELL	Herne Hill, Surrey
June 6, 1867	„ FRANCIS JOSEPH STOHWASSER	39, Conduit Street, Bond Street, London
Sept. 2, 1867	„ WILLIAM JAMES STAMPER	Wandsworth, Surrey

Sept. 2, 1867	Mr. WILLIAM BATTYE	16, Great Winchester Street, Old Broad Street, London
Sept. 10, 1868	„ NICHOLAS EDWARD ADOLPHUS REYNELL	Hutton Lodge, Wiltshire Road, Brixton, Surrey
Dec. 3, 1868	„ WILLIAM LEY	154, Westbourne Terrace, London
Jan. 7, 1869	„ JOHN BRADDICK MONCKTON (Town Clerk)	Guildhall, London
Jan. 7, 1869	„ ROBERT DOWNS	Upper Denmark Hill, Camberwell, Surrey
Jan. 7, 1869	„ JAMES VERCHILD LEY	171, Adelaide Road, Middlesex
Mar. 4, 1869	Sir PATRICK MAC CHOMBAICH DE COLQUHOUN	2, King's Bench Walk, Temple, London
Mar. 4, 1869	Mr. GEORGE EDWARDS	21, Newman Street, Oxford Street, London
June 3, 1869	„ STANDISH GROVE GRADY	8, St. George's Square, London
June 3, 1869	„ WILLIAM TINKLER	22, Chancery Lane, London
June 3, 1869	„ CHARLES FORTESCUE TAGART	The Wallands, Lewes, Sussex, and 25, Finchley New Road, London
June 3, 1869	„ JOHN KENDALL	Union Bank Chambers, Chancery Lane, London
Sept. 1, 1869	„ ALBERT CHANCELLOR	Richmond, Surrey
Sept. 16, 1869	„ JAMES ROCK	Brookwood, Hollington, Hastings, Sussex
Dec. 17, 1869	„ WILLIAM THOMAS EDWARDS COX	Spondon Hall, Derby
Mar. 17, 1870	„ THOMAS BURT HAYWOOD	Woodhatch Lodge, Reigate, Surrey
July 19, 1870	„ JOHN PHILIPSON	9, Victoria Square, Newcastle-upon-Tyne
July 19, 1870	„ ARTHUR EAST HOLMES	Osborne Cottage, Alvaston, Derby, and 38, Margaret St., Cavendish Square, London
July 19, 1870	Sir GILBERT EDWARD CAMPBELL, Bart	34, New Broad Street, London

1878-1879.—LIVERY—*continued.*

DATE OF ADMISSION.	NAME.	ADDRESS.
July 19, 1870	Mr. FRANCIS WEBB	31, Southampton Bldgs., Chancery Lane, London
Sept. 1, 1870	„ FREDERICK GEORGE GLOVER	16, South Villas, Camden Town, London
Dec. 8, 1870	Rev. REGINALD PERCY DANIELL-BAINBRIDGE (Hon. Chaplain)	2, Ashburne Villas, Harrogate, Yorkshire, and Chislehurst, Kent
Mar. 2, 1871	Mr. CHARLES ELLIS	21, College Hill, London
Sept. 1, 1871	„ GEORGE HARRISON	86, Camberwell Grove, London
Sept. 1, 1871	„ JOHN ELAM	33, Sackville Street, Piccadilly, London
Sept. 1, 1871	„ HENRY JOHN TURNER	22, Hamilton Terrace, St. John's Wood, London
Sept. 14, 1871	„ HORATIO CHANCELLOR	Chessington, Surrey
Sept. 14, 1871	„ HERBERT CHANCELLOR	80, Old Broad Street, London
Dec. 21, 1871	„ HENRY NICHOLSON (Clerk)	25, College Hill, London
Dec. 21, 1871	„ ALFRED GODBY BLAKE	23, George Street, Croydon, Surrey
Sept. 2, 1872	„ JOACHIM FREDERICK BREMER	Crosby Lodge, Tulse Hill, Surrey
Oct. 24, 1872	„ RICHARD JOHN BOYALL	Grantham, Lincoln
Jan. 23, 1873	„ FREDERICK SHANKS	Great Queen St., Lincoln's-inn-Fields, London
Jan. 23, 1873	„ CHARLES EDWIN CURTIS	94, Long Acre, London
Jan. 23, 1873	„ JOHN LAMBERT	66, Great Queen St., Lincoln's-inn-Fields, London
Jan. 23, 1873	„ WILLIAM HEWITT	Chester
Jan. 23, 1873	„ JOHN CHOLERTON MERRY	Albion Street, Derby
Jan. 23, 1873	„ CHARLES SANDFORD WINDOVER	32 and 33, Long Acre, London

	Feb. 7, 1873	Mr. ISAAC HUNTER DONALDSON	Southwick Crescent, Hyde Park, London
	Feb. 7, 1873	„ JAMES MOON	14, Buckland Villas, Belsize Park, London
	Feb. 7, 1873	Col. Sir HENRY WILMOT, Bart., V.C., M.P.	Chaddesden Hall, Derby
*	Feb. 7, 1873	H.R.H. THE DUKE OF EDINBURGH, K.G.	Clarence House, London
	Mar. 13, 1873	Mr. CHARLES THORN	Norwich
	Mar. 13, 1873	„ ARTHUR WILLIAM ELAM	Firsleigh, Isleworth, Middlesex
	Mar. 13, 1873	„ CHARLES BULL	24, Bedford Row, London
	Mar. 13, 1873	„ CHARLES JOHN PRICE	Cornwall Road, Stamford Street, London
	Mar. 13, 1873	Col. RICHARD DYOTT, M.P.	Freeford Hall, Lichfield, and 40, Grosvenor Place, London
	Mar. 13, 1873	Mr. FREDERICK SYMONS	St. John's Street, Lichfield
	April 3, 1873	„ GEORGE HENRY MABERLY	269, Oxford Street, London
	April 3, 1873	Sir RICHARD WALLACE Bart., M.P.	Manchester Square, London
	July 17, 1873	Mr. JAMES ALDREN MCNAUGHT	Worcester
	July 17, 1873	„ JAMES FREDERICK CORBEN	30, Great Queen Street, London
	July 17, 1873	„ CHARLES JONES DENTON	Bow Common, London
	Sept. 1, 1873	„ CHARLES HOLMES	38, Margaret Street, Cavendish Square, London, and London Road, Derby
	Sept. 1, 1873	„ HERBERT M. HOLMES, jun.	38, Margaret Street, Cavendish Square, London, and London Road, Derby
	Sept. 1, 1873	„ FRANK HOWELL	6, Lark Hall Rise, Clapham, Surrey
	Jan. 15, 1874	„ JOHN CHARLES WARD	Leicester Square, London
	June 4, 1874	„ JEREMIAH WELDON	130, Cheapside, London, and Wimbledon, Surrey

1878-1879.—LIVERY—*continued.*

DATE OF ADMISSION.	NAME.	ADDRESS.
July 16, 1874	Mr. CHARLES HARRY LITTLETON WILDAY	5, Castle Street, Holborn, London
July 16, 1874	The Hon. ASHLEY GEORGE JOHN PONSONBY	9, Princes Gardens, London, and Heatherfield, Ascot Heath, Staines
July 15, 1875	Major JOHN THOMAS POUNTAIN	Cowsley House, Derby
July 15, 1875	Mr. GEORGE EDWARD HOLMES	38, Margaret Street, Cavendish Square, London, and London Road, Derby
Sept. 1, 1875	„ WILLIAM HENRY BURROUGHES	19, Soho Square, London
Sept. 1, 1875	„ JAMES SAMUEL BURROUGHES	19, Soho Square, London
Mar. 9, 1876	„ WILLIAM THOMAS PURKISS	The Limes, Queen's Road, Finsbury Park, London
April 13, 1876	„ LEONARD HARRIS	Vere Street, Clare Market, London
Dec. 7, 1876	„ ROBERT SILK	8, Long Acre, London
Dec. 7, 1876	„ WILLIAM SILK	8, Long Acre, London
Jan. 25, 1877	„ HENRY ALFRED ALEXANDER THORN	8, Addison Road, Kensington, London
June 14, 1877	„ HENRY WILLIAM MASON	Kingsland Road, London
Sept. 1, 1877	„ FREDERICK CHAS. WILLIAM THORN	8, Addison Road, Kensington, London
Oct. 25, 1877	„ WILLIAM THOMAS THORN, Jun	11, Ladbroke Square, London
Mar. 14, 1878	„ EDWARD THOMAS DAVIS	75, Caversham Road, London

NOTE.—The Names of the Freemen of the Company are not included in this list.

The following Memoranda relate to the recent efforts made by this Company to stimulate skill and ingenuity among those engaged in the trade of Coach-making, and also to encourage technical education.

1864.

The Company granted the free use of the Hall to the Committee for carrying out the Operative Coach-makers' Industrial Exhibition, which was opened the 1st February, 1865, by the Most Noble the Marquis of Lansdowne and the Rev. H. Milman, D.D., Dean of St. Paul's. The Company also granted three medals, which were awarded to—

JOHN ADCOCK (Mechanician), 4, *Marlborough Road, Dalston, London.*

F. HUMPHREYS, 10, *Bell Street, Edgware Road, London.*

H. PILBEAM (Coachsmith), 17, *Brownlow Street, London.*

J. BASSETT (Viceman), 25, *Brownlow Street, London.*

1866.

The Company voted medals to be awarded by the Examiners of the Society of Arts.

1867.

The Company made a grant of money to the Society of Arts in aid of Examinations.

1868.

The Company made a grant of money to commence a Library of Reference for the use of Coach-makers. The

Library is now open, subject to the regulations hereinafter mentioned.

1869, 1870.

The Company made grants of medals and money, in each of these years, to the Society of Arts.

1871.

Two silver and two bronze medals were granted to the Science and Art Department of the Society of Arts, for Freehand Drawing and Practical Mechanics; and one of such bronze medals was awarded to—

WILLIAM HENRY LEWIS, aged 16, (Coachbody Maker's Apprentice), *Sansome Walk, Worcester.*

1872.

The Company voted medals similar to those of last year, in addition to two silver and two bronze medals, to be competed for by Coach-makers' Foremen, Workmen, and Apprentices, for Drawings of Carriages or parts of Carriages to scale. In the latter competition, a silver medal was awarded to—

GEORGE FLEMING BUDD (Coachbody Maker), 3, *Cumberland Street, Tything, Worcester;* and a bronze medal to—

WILLIAM C. BOLT (Coachbody Maker), 18, *Georgiana Street, Camden Town, London.*

1873.

The Company made their usual grants to the Society of Arts; but no award was made, on account of insufficiency of merit.

The Company voted the following prizes, for persons engaged in the trade of Coachmaking, viz.:—For Freehand or Mechanical Drawing applicable to Carriages, or

parts of Carriages, or the Ornamentation thereof, 1st Prize, the Company's silver medal and £3; 2nd Prize, the Company's bronze medal and £2. For Practical Mechanics—1st Prize, the Company's silver medal; 2nd Prize, the Company's bronze medal. Each Prize to be accompanied with the Company's Certificate of Merit; the Prizes to be awarded by Judges, being Members of the Court. The awards were as follows:—

1st Prize.—GEORGE FLEMING BUDD (Coachbody Maker), of *No.* 3, *Cumberland Street, Tything, Worcester.*

2nd Prize.—JAMES BROWN (Foreman), 18, *Kingsmead Street, Bath.*

3rd Prize.—GEORGE EDWARD HOLMES (Foreman), *London Road, Derby.*

The Company's Certificate of Merit was likewise awarded to—

BENJAMIN LAWS (Foreman), 413, *Liverpool Road, Islington, London.*

JOHN P. LAKE (Foreman), 1, *Philip Street, Westminster.*

The Company, in addition to the foregoing, offered the three following Prizes, and the Company's Certificate, to Foremen, Clerks, Workmen, and Apprentices in the Coach-making Trade in the United Kingdom, for the best reports on the International Exhibition of Carriages at South Kensington, which were awarded as follows:—

1st Prize.—JAMES BROWN, aged 42 (Foreman), 18, *Kingsmead Street, Camberwell, London.*

2nd Prize.—C. S. ASH, aged 28 (Clerk), *Coleman Street, Wells Street, Camberwell, London.*

3rd Prize.—JOHN ROBERTSON, aged 26 (Assistant Foreman), 29, *Berwick Street, Pimlico.*

The Certificates of Merit were also awarded, under this competition, to—

WILLIAM SILK, junr., aged 19 (Clerk), *Long Acre, London.*

JOHN CHARLES KING, aged 40 (Foreman), *Regent's Park Carriage Works, Park Street, Camden Town.*

GEORGE FLEMING BUDD, aged 28 (Coachbody Maker), 59, *Gartree Street, Leicester.*

JOHN COLE, aged 24 (Assistant Foreman), 5, *Young Street, Kensington.*

RALPH DREWERY, aged 27 (Body Maker), 60, *Lambeth Walk, London.*

WILLIAM LETCHFORD, aged 40 (Body Maker), 56, *Allen's Buildings, Finsbury, London.*

1874.

The Company voted similar Prizes as last year, to the Science and Art Department, South Kensington. No award was made. There was only one Candidate, and the Examiners did not think his work entitled him to a Prize.

The Company also offered similar Prizes, as last year, for Drawings of Carriages or parts of Carriages to scale, which were awarded as follows:—

1st Prize.—GEORGE FLEMING BUDD, aged 29 years (Coachbody maker), 59, *Gartree Street, Leicester.*

2nd Prize.—JOHN P. LAKE (Foreman), 1, *Philip Street, Westminster.*

3rd Prize.—BENJAMIN LAWS (Foreman), 413, *Liverpool Street, Islington, London.*

In addition to the above Prizes, the Judges awarded the following Certificates of Merit:—

JAMES BROWN, aged 42 (Foreman), 18, *Kingsmead Street, Bath.*

CHARLES BOLT, aged 15 (Bodymaker's Apprentice), 18, *Georgiana Street, Camden Town, London.*

LEWIS JAMES BUTLER, aged 18 (Bodymaker's Apprentice), 33, *Bryanstone Street, Portman Square, London.*

In addition to the above, the Company offered, for the first time, the following Prizes, viz. :—

1st Prize—Silver Medal and £3 and Certificate;
2nd Prize—Bronze Medal and £2 and do.
3rd Prize—Bronze Medal and £1 and do.

To be awarded by the Examiners in the Technology of Carriage Building, at the Examination to be held by the Society of Arts; but no award was made on account of insufficiency of merit.

1875.

The Company voted similar prizes, as last year :— For Freehand or Mechanical Drawings, and for Drawings of Carriages or parts of Carriages to scale, which were awarded as follows, viz. :—

For Freehand Drawing—

1st Prize.—ALEXANDER P. ROXBURGH (Coach-body Maker), 11, *Abbey Street, Paisley.*

2nd Prize.—THOMAS GILCHRIST (Clerk), *Castle-grove, Lancaster.*

The Company's Certificate of Merit on such account was presented to—

WALTER BIDDLECOMBE, aged 18 (Apprentice to Coach-painting), 16, *Blechyndon-terrace, Southampton.*

For Drawings to Scale—

1st Prize.—J. P. LAKE (Foreman), 1A, *Howick Place, Westminster*

2nd Prize.—LEWIS JAMES BUTLER, aged 19 (Coach-body Maker's Apprentice), 30, *Bryanstone Street, Portman Square.*

3rd Prize.—JOHN HUMPHREY WALLIS, aged 26 (Coach-body Maker), 172, *Euston Road, Loudon.*

The Company's Certificate of Merit, on the like account, was presented to—

CHARLES BOLT, aged 16 (Coach-body Maker's Apprentice) 18, *Georgiana Street, Camden Town, London.*

The Company also offered similar Prizes, as last year, for Technology of Carriage Building, which were awarded as follows, viz.:—

1st Prize.—MATTHEW MULLINS (Coach-body Maker), 42, *Maylor Street, Cork.*

2nd Prize.—WILLIAM THOMPSON CASSON (Carriage Maker) *Bower Bridge, Aspatria, Cumberland.*

3rd Prize.—J. H. MERCER (Coach-body Maker's Apprentice), 220, *Radclyffe Street, Oldham, Lancashire.*

The Master (MR. GEO. N. HOOPER,) offered the following Special Prize, viz.: 20 Guineas (supplemented with the Silver Medal of the Company) for the best Essay or Treatise on the Making of Carriage Bodies (without restriction as to the employment of the writer), to be adjudicated by certain members of the Court, who awarded the same to—

JAMES BROWN (Foreman), 18, *Kingsmead Street, Bath.*

They also reported that the Essays by GEORGE FLEMING BUDD (Coach-body Maker), 29, *Canterbury Road, Kilburn, Middlesex;* W. THOMPSON CASSON (Carriage Maker), *Bower Bridge, Aspatria, Cumberland;* and WILLIAM HEYWOOD (Foreman), *High Street, North End, Huntingdon,* were very

meritorious; and Certificates of Merit were awarded to them.

1876.

The Company voted similar Prizes, as last year, for Freehand or Mechanical Drawing, and for Drawings of Carriages or parts of Carriages to scale, which were awarded as follows:—

For Freehand or Mechanical Drawing—

1st Prize.—WILLIAM SILK, jun., aged 22 (Clerk), 8 *and* 9, *Long Acre, London.*

2nd Prize.—WILLIAM FARR, aged 27 (Coach Trimmer), 51, *Castle Street, Salisbury.*

The Company's Certificate of Merit, on like account, was also awarded to ALEXANDER P. ROXBURGH, aged 25 (Coach-body Maker), 11, *Abbey Street, Paisley.*

For Drawings to Scale—

1st Prize.—LEWIS JAMES BUTLER, aged 20 (Coach-body Maker's Apprentice), 30, *Bryanstone Street, Portman Square.*

2nd Prize.—WILLIAM HEYWOOD, (Foreman), *Vine Cottage, High Street, Huntingdon;* but not entitled thereto, being over 30 years of age.

The Company also offered similar Prizes, as last year, for Technology of Carriage Building, which were awarded as follows, viz:—

1st Prize.—WILLIAM HEYWOOD, aged 36, *Vine Cottage, High Street, Huntingdon.*

2nd Prize.—MATTHEW MULLINS, 42, *Maylor Street, Cork.*

3rd Prize.—LEWIS JAMES BUTLER, aged 21 (Coach-body Maker's Apprentice), 167, *Seymour Place, Bryanstone Square, London.*

In addition to the above Prizes, the Master (MR. WILLIAM HOOPER) offered the following Special Prizes, viz. :—1st Prize, £12, and the Company's Silver Medal; 2nd Prize, £6; 3rd Prize, £3 (all supplemented with the Company's Certificate), for the best Essays or Treatises on the Construction of the Underworks of Carriages, without restriction as to the age of the writer, to be adjudicated upon by certain members of the Court, who awarded as follows:—

1st Prize.—Mr GEORGE FLEMING BUDD (Coach-body Maker), 21, *Harley Street, Battersea, London.*

2nd Prize.—WILLIAM THOMSON CASSON, aged 32 (Carriage Maker), *Aspatria, Cumberland.*

3rd Prize.—JAMES BROWN, aged 44 (Foreman), *Kingsmead Street, Bath.*

And a Certificate of Merit was awarded to WILLIAM HARRY HAMLIN HAMSHAW, aged 22 (Coachbuilder's Assistant), 38, *West Street, Leicester.*

1877.

The Company voted similar Prizes, as last year, which were awarded as follows, viz. :—

For Freehand or Mechanical Drawing—

1st Prize.—WILLIAM HARRY HAMLIN HAMSHAW, aged 23 (Coachbuilder's Assistant), 38, *West Street, Leicester.*

2nd Prize.—EDWARD ATTERBY, aged 14 (an Apprentice to Coach Smithing), *Huntingdon.*

The Company's Certificates of Merit were, on the like account, presented to—

WILLIAM FARR, aged 28 (Coach Trimmer), 51, *Castle Street, Salisbury.*

WILLIAM SIMPSON, aged 28 (Coach Painter), 38, *Moore Street, Chelsea, London.*

F. W. HEADFORD, aged 27 (Trimmer), 34, *Alpha Terrace, Canterbury Road, Kilburn, London.*

J. SORRELL, aged 38 (Body Maker), 8, *Artillery Terrace, Victoria Street, Westminster.*

WILLIAM DARLEY, aged 37 (Coach Carver), 3 *Medway Street, Horseferry Road, Westminster.*

WILLIAM HEYWOOD, aged 36, *Vine Cottage, High Street, Huntingdon.*

THOMAS COWARD, aged 42 (Coach Smith), 52, *Bellefield Road, Brixton, London.*

LEWIS JAMES BUTLER, aged 21 (Coachbody Maker's Apprentice). 167, *Seymour Place, Bryanstone Square, London.*

ALFRED GREENWAY, aged 18 (Clerk), 35, *George Street, Worcester.*

VINCENT R. BREAKWELL, aged 16 (Apprentice), *Cleobury Mortimer, Bewdley, Worcestershire.*

JOHN E. BREAKWELL, aged 15 (Apprentice). *Cleobury Mortimer, Bewdley, Worcestershire.*

CHARLES WESTERN, aged 21 (Body Maker), 5, *Keen's Yard, St. Paul's Road, Canonbury, London.*

For Drawings to Scale—

1st Prize.—WILLIAM THOMPSON CASSON, aged 33 (Carriage Maker), 49, *Coburg Buildings, Westminster.*

2nd Prize.—CHARLES BOLT, aged 18 (Coach-body Maker's Apprentice), 8, *Georgiana Street, Camden Town.*

3rd Prize.—F. C. PENDRY, aged 16 (Coach-body Maker's Apprentice), 1A, *Howick Place, Victoria Street, Westminster.*

The Company's Certificates of Merit were, on the like account, presented to—

S. MALLARD, aged 33 (Coachbody Maker), 18, *Dorset Road, South Lambeth, London.*

H. LUCAS, aged 23 (Coach Smith), 43, *Ossington Street, Bayswater, London.*

The Company also offered similar Prizes, as last year, for Technology of Carriage Building, which were awarded as follows:—

1st Prize.—MATTHEW MULLINS, 42, *May Street, Cork.*

2nd Prize.—WILLIAM HARRY HAMLIN HAMSHAW, 38, *West Street, Leicester.*

The 3rd Prize was not awarded.

In addition to the above, special Prizes were offered for the best Essays or Treatises on the "Manufacture of Carriage Axles, Springs, and Ironwork" (without restriction as to the age of the writer), and were awarded by the same gentlemen as last year, as follows:—

1st Prize.—GEORGE FLEMING BUDD, (Coachbody Maker), *Blackstock Road, Finsbury Park, London.*

2nd Prize.—WILLIAM HEYWOOD, aged 36 (Foreman), *Vine Cottage, High Street, Huntingdon.*

3rd Prize.—JOHN CHARLES KING (Foreman), 104, *Park Street, Camden Town, London.*

1878.

The Prizes voted by the Company in this year were awarded as follows:—

For Freehand and Mechanical Drawings—

1st Prize.—GEORGE BOLT, aged 17 (Apprentice to Herald Painter and Artist to the Trade), for drawings of Heraldry and Monograms, Original Designs, 18, *Georgiana Street, Camden Town, London.*

2nd Prize.—WALTER COWARD, aged 15 (Coachbody Maker's Apprentice), for a Drawing, 52, *Bellefield Road, Brixton, Surrey.*

Certificates of Merit were also awarded to—

EDWARD ATTERBY, aged 15 (an Apprentice to Coach Smithing), but, as winner last year, ineligible to receive the prize, for drawings of foliage, *Huntingdon.*

WILLIAM THOMAS EASTON, aged 15 (Apprentice to Coach Painting), for drawing of foliage, 39, *Commercial Road, Portsmouth, Hants.*

VINCENT R. BREAKWELL, aged 17 (Apprentice), for drawings of Foliage, *Cleobury Mortimer, Bewdley, Worcestershire.*

For Drawings to Scale :—

1st Prize.—No drawing of sufficient merit to carry the Prize.

2nd Prize.—F. C. PENDRY, age 17 (Coachbody Maker's Apprentice), for drawing of a Shelburne Landau, with Working Sections, 1A, *Howick Place, Pimlico, Westminster.*

3rd Prize.—ALFRED GREENWAY, age 19 (Coachmaker's Apprentice), for Three Drawings. 1, a C-Spring Landau, with balance-head arrangement; 2, a C-Spring Double Brougham; and 3, a Perch Undercarriage, 35, *George Street, Worcester.*

The Company also offered similar Prizes, as last year, for Technology in Carriage Building, which have been awarded as follows :—

1st Prize.—GEORGE MUNDY, 12, *Cambridge Street, Spittle Gate, Grantham.*

2nd Prize.—JOHN HENRY MERCER, 220, *Radclyffe Street, Oldham, Lancashire.*

The 3rd Prize was not awarded.

In addition to the above, special Prizes were offered for the best Essays or Treatises on "Carriage Painting and Varnishing," with the Company's Certificate of Merit, which were awarded as follows:—

1st Prize.—JEREMIAH F. MULLINS, aged 29 (Coach Painter), *Maylor Street, Cork.*

2nd Prize.—JOHN CHARLES KING, *Launder Terrace, Grantham.*

3rd Prize.—HENRY SMART (Coach Painter), 3, *Phineas Street, Paradise Square, Oxford.*

LIST OF PRIZE WINNERS.

ADCOCK, J.
ASH, C. S.
ATTERBY, E.

BASSETT, J.
BIDDLECOMBE, W.
BOLT, W. C.
BOLT, C.
BOLT, GEORGE
BREAKWELL, J. E.
BREAKWELL, V. R.
BROWN, J.
BUDD, G. F.
BUTLER, L. J.

CASSON, W. T.
COLE, JOHN
COWARD, T.
COWARD, W.

DARLEY, W.
DREWERY, R.

EASTON, T. E.

FARR, W.

GILCHRIST, T.
GREENWAY, A.

HAMSHAW, W. H. H.
HEADFORD, F. W.
HEYWOOD, W.
HOLMES, G. E.
HUMPHREYS, F.

KING, J. C.

LAKE, J. P.
LAWS, B.
LETCHFORD, W.
LEWIS, W. H.
LUCAS, H

MALLARD, S.
MERCER, J. H.
MULLINS, M.
MULLINS, J. F.
MUNDY, G.

PENDRY, F. C.
PILBEAM, H.

ROBERTSON, J.
ROXBURGH, A. P.

SILK. W., JUN.
SIMPSON, W.
SMART, H.
SORREL, J.

WALLIS, J. H.
WESTERN, C.

THE LIBRARY.

THE first grant of money for the formation of a Library of Reference was made in the year 1868, and the same is now open to the trade, subject to the following regulations, viz. :—

In the Hall there is a Library of books in relation to Coach-building, and also the photographs and drawings of carriages exhibited in the International Exhibition of Carriages in 1873; but as it is a Library of Reference, no book or drawing can be taken away from the premises; but Liverymen and other persons can have access to the same by a written order (available for three months) from a Member of the Court. The Library is open every Saturday from 12 mid-day till 4 p.m.

FORM OF LEGACY.

I bequeath to the Master, Wardens, Assistants, and Commonalty of the Worshipful Company of Coachmakers and Coach-harness Makers of London, the sum of £ out of such part of my personal estate only as I may by law bequeath, for Corporate or Charitable purposes. And I declare that the receipt of the Master of the said Company for the time being for such sum of £ shall be a sufficient discharge to my executors for the same.

REPORT

OF THE

MASTER COACHBUILDERS'

BENEVOLENT INSTITUTION,

THE

BALANCE SHEET,

AND

LIST OF SUBSCRIBERS AND DONORS

For the Year ending

DECEMBER 31st, 1877.

PROCEEDINGS OF THE GENERAL MEETING,

HELD AT THE CARRIAGE BAZAAR,

BAKER STREET, PORTMAN SQUARE, LONDON, W.

ON TUESDAY, JANUARY 22ND, 1878;

THE MASTER OF THE COMPANY IN THE CHAIR.

President.

THE RIGHT HONOURABLE
THE EARL OF SHREWSBURY.

Vice-Presidents.

THE RIGHT HON. THE EARL OF WHARNCLIFFE.
THE RIGHT HON. LORD EBURY.
ALFRED DE ROTHSCHILD, ESQ.

Chairman.

MR. JOHN W. PETERS.

Deputy-Chairman.

MR. G. N. HOOPER.

Committee.

ALDEBERT, Mr.
BARTLETT, Mr. WALTER.
COOK AND HOLDWAY, Messrs.
CORBEN AND SONS, Messrs.
HALL AND SONS, Messrs.
HOLLAND, Mr. JOHN.
HOLMES, Mr. CHARLES.
HOOPER AND Co., Messrs.
IVALL AND LARGE, Messrs.
KESTERTON, Mr. V.
LAMBERT, Mr.
MILLS, Mr.
MULLINER, Mr. H.
NEWSON, Mr. GEORGE.
PETERS AND SONS, Messrs.
ROBINSON, Mr.
ROGERS, Mr.
ROGERS, Mr., Jun.
RUBIDGE, Mr.
SHANKS, Messrs.
SILK AND SONS, Messrs.
STAMPER AND SON, Messrs.
TAYLOR, Mr.
THORN, Messrs. W. and F.
THRUPP AND MABERLY, Messrs.
WOODALL AND SON, Messrs.
WYBURN AND Co., Messrs.

Honorary Local Secretaries.

ATKINSON AND PHILIPSON, Messrs., Newcastle-upon-Tyne.
BENNION AND HEALEY, Messrs., Liverpool.
BOYALL, Mr. R. J., Grantham.
CARPENTER, Mr., Staines.
CATT BROTHERS, Messrs., Ipswich.
CHAPMAN, Mr., Berkeley Villas, Bristol Road, Gloucester.
COCKSHOOT, Mr., Jun., Manchester.
COUSINS, Mr., Oxford.
HOLMES, Messrs., Derby.
HOLMES, Mr. H. M., Jun., Derby.
HUNNYBUN AND SON, Messrs. T., Cambridge.
JOLLY, Messrs., Norwich.
M'NAUGHT AND SMITH, Messrs., Worcester.
MAULE, Mr., Alnwick.
MULLINER, Mr., Liverpool.
MULLINER, Mr. H., Leamington and Northampton.
ROCK AND HAWKINS, Messrs., Hastings.
STAREY, Mr., Nottingham,
STUBBS. Mr., Aldershot.
VEZEY, Messrs., Bath.
WRIGHT, Messrs., Harrogate.

Honorary Treasurer.

MR. EDWARD HALL, 98, Long Acre, London, W.C.

Honorary Secretary.

MR. JOHN F. WOODALL, Orchard Street, Portman Square, London, W.

Trustees.

KIRKMAN D. HODGSON, Esq., M.P. (Messrs. Baring Brothers), 8, Bishopsgate Street Within, E.C.
GEORGE N. HOOPER, Esq., 113, Victoria Street, S.W.
JOHN W. PETERS, Esq., 53, Park Street, W.
WILLIAM H. TAYLOR, Esq., Hounslow.

Honorary Solicitor.

HENRY NICHOLSON, Esq., 25, College Hill, E.C.

Arbitrators.

W. CLODE, Esq., of Her Majesty's Civil Service.
R. T. JARVIS, Esq., Solicitor.
CROMPTON HUTTON, Esq., Barrister-at-Law.
C. J. THRUPP, Esq., Barrister-at-Law.

Auditors.

Mr. JAMES ROBINSON, Masbro' Lodge, Southey Road, New Wimbledon.
Mr. WILLIAM T. THORN, 19, Great Portland Street.
Mr. G. A. THRUPP, 269, Oxford Street.

Collector.

Mr. JNO. FREDK. TOMLINSON, 9, Darnley Road, Notting Hill, W.

Bankers.

BANK OF ENGLAND, WESTERN BRANCH, BURLINGTON GARDENS, W.

EXTRACTS

FROM THE

RULES OF THE INSTITUTION.

The Objects of the Institution.

RULE II. That the objects of this Institution are to afford temporary or permanent relief to those Members of the Trade having been Masters, Clerks, or Managers, their widows and children, who are in necessitous circumstances, arising from age, sickness, or misfortune, by granting annual pensions and by giving immediate relief in urgent cases.

Governors.

RULE XI. Annual Subscribers of £1 1s. to be Governors. Donors of £10 10s. in one donation to be Life Governors, and to be entitled to vote and take part in the proceedings at all General Meetings, and in the election of the Committee. Any Minister transmitting £10 or upwards from his congregation, or the first-named Executor under a will by which a legacy of £21, or upwards, is bequeathed to this Institution, shall be also Life Governors. All Subscribers of £1 1s. annually, or Donors of £10 10s., shall have as many votes at elections for pensioners, as there are pensioners to be elected: and additional votes upon the same principle for each guinea annually subscribed or each donation of £10 10s.; but no subscriber is entitled to any privileges whose subscription is in arrear.

PROCEEDINGS

AT THE

TWENTY-SECOND ANNUAL GENERAL MEETING

OF THE

GOVERNORS AND SUBSCRIBERS

OF THE

Master Coachbuilders' Benevolent Institution,

AND

Report for the Year ending December 31st, 1877.

ON Tuesday, January 22nd, 1878, the Twenty-second Annual General Meeting of the Governors and Subscribers was held at the Carriage Bazaar, Baker Street, Portman Square, London, W.

At half-past One o'clock the Chair was taken by

CHARLES SAUNDERSON, ESQ.,

Master of the Worshipful Company of Coach Makers and Coach Harness Makers of the City of London,

And many friends being present, the minutes of the last General Meeting were read, and, having been confirmed, were duly signed.

Mr. Wm. Hooper, owing to the unavoidable absence of the Deputy-Chairman, Mr. G. N. Hooper, read the following Report:—

REPORT.

IN presenting their Twenty-second Annual Report, your Committee have to inform you that your Benevolent Institution still continues to carry on efficiently the objects for which it was founded.

The accounts, kept with the usual exactness by your Honorary Treasurer, were duly audited, and will be presented to you.

During the past year, three of your Pensioners have died :—

Mr. George Ware,
Mr. William Walton, and
Mrs. Catherine Whittington,

and, in accordance with Rule 14, your Committee have continued the pension of Mr. Walton to his Widow.

As regards the subscriptions and donations last year, they were not equal in amount to those of the previous year. In times of depressed trade, such must be expected; but when trade revives, it is hoped the subscriptions and donations will also revive.

The total receipts since your Institution was founded are £19,685 6s. 3d., of which £9,781 5s. has been given in pensions, aad £1,918 7s. in temporary relief.

There have been sixty-four Pensioners elected, of whom thirty-two (one half) are now living, and in the receipt of £620 per year.

You will recollect that in the Report of 1877 reference was made to the sum of £100 sold out from your invested capital, in order to carry on the work of the Institution. Your Committee very much regret that circumstances have not allowed them to replace this amount, as they had wished to do. Your Reserve Fund now stands at £6,650; this amount and further details of money affairs appear in your Hon. Treasurer's annual Statement.

Your Committee recommend that two Pensioners be elected to-day.

It is with great regret that your Committee announce the death of your President, The Right Honourable the Earl of Shrewsbury, as also one of your Vice-Presidents, The Most Noble the Marquis of Ailesbury, K.G., during the past year. It is gratifying to the supporters of the Institution, that these offices should be held by Noblemen of high rank, not only as a bond of union between the ancient nobility and the traders of this country, but also as showing their interest in the welfare of an important British industry, which not only has done much in times past to promote their comfort and convenience, but has also played a not unimportant part in the advancement of civilization, before the railway system (with its mighty organization) cast it somewhat in the shade, materially altered its direction and object, and drove its followers to adapt their productions to different wants and a changed construction.

But the most important fact in the annals of the past year has to be mentioned in the removal, by death, of our much-esteemed colleague the late Mr. Lewis James

Leslie, on the 16th of November, at the age of seventy-one. He was one of the first promoters and founders of your Charity, assisted materially in framing the Rules that have ever since guided the Committee in their work, and, as your first Honorary Secretary, for eleven years, by his energy, tact, and amiable temper, helped the Institution through its early struggles and difficulties.

He so organized the work of his arduous office, that information as to its past and present is easily accessible. His intimate knowledge of the Trade of the Coachmaker, as also of the individuals who follow it in London and in the Country, was invaluable in the investigation of applications for charitable assistance; and it is not too much to say, that much of the successful working of the Charity is due to his indefatigable industry, intelligence, and advice.

A deputation of your Committee attended his funeral, as a last mark of respect to a beloved colleague, and a letter of sympathy and condolence has been sent by the Committee to his bereaved and sorrowing daughters.

As a last token of goodwill, in addition to the pecuniary assistance he so liberally gave in his lifetime, and as a further proof of his thoughtful kindness for its necessity, he has bequeathed a legacy of £50 to the Institution.

The question as to another festival in aid of the Funds has not been forgotten, and it is hoped that before long trade will revive, and that not only may the Institution be benefited by an increase of funds, but that old acquaintances may be renewed, and friendly feelings kept up between the Metropolis and the provinces.

In the course of the past year, an offer was made by the Charity Organization Society to assist in investigating the

cases brought before the Committee; but on consideration, it was not thought suitable to a special trade charity like yours, where individuals are more known, as well as their position and circumstances, and that the work of such a Society could be more usefully applied to some of the large general charities where it was found that individuals were greatly abusing them, by receiving assistance from several at the same time, the particular facts not being known to the Managers of the charities that were thus being imposed on.

The Society has checked many of these abuses, and, by freely communicating with the charities, and investigating the cases, helped to promote a more just distribution of charitable funds; exposing the impostors, and helping to adequate relief and assistance many of the deserving poor, who, by ill-health or misfortune, had lost the means of earning their livelihood, and were in want of a little suitable help to make a fresh start in life.

The Committee urge upon the subscribers the necessity of continued exertions, to maintain the Institution in its fullest efficiency, not only as regards funds, but also with personal help in keeping its objects steadily in view, recommending it to their friends wherever possible, helping the Committee with information as to cases that come before them, and also by joining the Committee of Management, whose labours they may lighten and render still more successful.

The Balance Sheet to December 31st, 1877, was read by the Honorary Treasurer.

The Chairman, after addressing the meeting, moved that the Report and the Balance Sheet be received, adopted, and printed for circulation amongst the subscribers: this motion was seconded by Mr. Robinson, and unanimously agreed to.

A list of new annual subscriptions and donations was read, as under, viz. :—

NEW ANNUAL SUBSCRIPTIONS DURING 1877.

	£	s.	d.
Angas, Silas Thomas, 34, *Friday Street* ... ...(*renewed*)	1	1	0
Keites and Sons, *Leicester*	1	1	0
Lucas, F. W., *Brixton Hill* ... ... (*increased*) *to*	3	3	0
Marshall, Sanders, and Co., *Birmingham* ... ... (*increased*) *to*	2	2	0
Nightingale, W. and C., 30, *Old Compton Street*	1	1	0
Payne, William, *Guildford*	1	1	0
Rennie, John, 138, *High Holborn*	1	1	0
Roberts, John, *Stretford Road, Manchester*	1	1	0

NEW DONATIONS DURING 1877.

Saunderson, C., Esq. ... ... (*additional*)	12	12	0
Connolly, J. W. and Thomas	1	1	0
Cowland, John, Jun., 17, *Woburn Place*	1	1	0
Healey, W., Esq., *New York*	1	1	0
Holland, John, 107, *Park Street*...	1	1	0
Hooper, George N., 113, *Victoria Street*	1	1	0
Hooper, William, 113, *Victoria Street*	1	1	0
Jones, Thomas W., *Horse Fair, Birmingham*	1	1	0
Keites and Sons, *Leicester*	1	1	0
Lucas, F. W., *Brixton Hill*	10	10	0
Marshall, Sanders, and Co., *Birmingham*	1	1	0
Peters, Joseph	1	1	0
Stamper and Son, *Wandsworth*...	1	1	0
Whittingham and Wilkin, 136, *Long Acre*	1	1	0
Winterbotham, A. B., *Cam Mills, Gloucester* ... ... (*additional*)	10	10	0
Woodall, Miss, *Orchard Street*	10	10	0

The Honorary Secretary (Mr. John F. Woodall) moved, and the Honorary Treasurer (Mr. Edward Hall) seconded, "That the general meeting confirm as life governors the donors who have during the last year increased their donations to ten guineas;" also, "That the sanction of this general meeting, as required by Rule VII., be given to the Committee for relieving a second time the cases of J. H. Gowar, Dorothy Manger, N. Symons, and Marianne Nash."

The motion was agreed to, and the meeting proceeded to a ballot for two new pensioners.

The poll having been declared closed, Mr. Mills, as Chairman of Scrutineers, reported the result to be as follows :—

SUCCESSFUL CANDIDATES.

Mr. Nicholas Symons, *Truro* ... ... 604 Votes.
Mr. James Hicks Gowar, *Stratford*... 532 „

The Honorary Secretary then announced the amount of the pensions accorded to the successful candidates by the Committee, viz., Mr. Nicholas Symons, £20; Mr. James Hicks Gowar, £20.

Mr. Robinson proposed, and Mr. Holmes seconded, a special vote of thanks to the Honorary Treasurer and the Honorary Secretary, for their exertions in carrying on the business of the Institution during the past year, and kindly consenting to continue in office.—Carried.

Both officers thanked the meeting for the vote, and expressed their pleasure that their labours met with the approval of the Governors.

The Chairman moved, and Mr. W. Hopper seconded, a vote of thanks to the Committee of Management and the officers of the Institution, and that they be re-elected. Upon this motion being put and carried,

Mr. John W. Peters, as Chairman of the Committee, returned thanks.

Mr. Wilkin moved, and the Honorary Treasurer seconded, "That the thanks of the meeting are also due to the Honorary Local Secretaries, and that they be re-elected."—Carried.

Mr. H. M. Holmes thanked the meeting for the vote.

On the motion of Mr. W. J. Stephens, seconded by Mr. W. Carpenter, thanks were voted to the Scrutineers and acknowledged by Mr. George Mills.

Mr. R. Silk moved, and Mr. George Newson seconded, "That the cordial thanks of the Committee and of this

meeting be given to Messrs. Boulnois, for their continued great kindness in placing at the disposal of the Institution a Committee-room throughout the year."—The motion was carried with applause.

Mr. G. A. Thrupp moved, and Mr. G. H. Maberly seconded, a vote of thanks to the Chairman, which was carried with acclamation.

The meeting was then dissolved.

NOTE.—The Committee are gratified at being able to state that since the Anniversary Meeting the Right Hon. the Earl of Shrewsbury has accepted the office of President, vacant by the decease of his Lordship's Father, as announced in the above report.

LIST OF DECEASED PENSIONERS.

When Elected.	Age when Elected.	Names and Residences.	Amount of Pension per year. £	s.	d.	Died.	Age at Death.
1857	78	Emily Ann Birch, *London*	15	0	0	1858	79
1857	80	Simon Bishop	15	0	0	1858	81
1857	60	W. Botwood, *Bridgnorth, Salop*	20	0	0	1862	65
1857	83	John Cole Cooper, *London*	25	0	0	1864	90
1857	54	Harvey Day	15	0	0	1858	55
1857	57	Vincent Oldfield, *London*	25	0	0	1859	59
1858	67	Augusta Ann Birch, *London*	15	0	0	1861	70
1858	67	William Garner, *London*...	20	0	0	1863	72
1858	66	Christiana Tapp, *London*	25	0	0	1871	79
1858	77	Joseph Parke, *Ipswich*	25	0	0	1872	91
1858	70	Rebecca Fuge, *London*	15	0	0	1873	85
1858	63	John R. Gorst, *Liverpool*	25	0	0	1873	78
1858	45	George Ware, *London*	20	0	0	1877	64
1859	55	Susannah Day, *London*	10	0	0	1869	65
1859	48	Elizabeth Hill, *London*	20	0	0	1869	63
1859	65	George Field, *London*	15	0	0	1874	75
1859	72	Wm. Ward Harvey, *Mansfield*	15	0	0	1868	81
1860	51	Rebecca Legg, *London*	15	0	0	1866	57
1861	59	Charles Thornthwaite, *Bath*	10	0	0	1866	64
1862	75	Henry Howard Nash, *London*	20	0	0	1871	84
1862	68	James Simmonds, *Sevenoaks*	25	0	0	1873	79
1864	67	James Oldfield, *London*	10	0	0	1866	69
1865	71	Henry Godbolt, *Norwich*	20	0	0	1872	78
1865	69	John Donaldson, *London*	20	0	0	1876	81
1866	76	Elizabeth Cooper, *London*	25	0	0	1873	83
1867	75	James Paul Perry, *London*	20	0	0	1870	78
1868	63	Emily Hoadly, *London*	25	0	0	1874	70
1868	74	W. B. Edridge, *London*	20	0	0	1871	77
1868	75	William Wool, *London*	25	0	0	1873	80
1869	69	John Whittington, *Hastings*	15	0	0	1870	70
1870	69	C. Whittington, *Newport I.W.*	20	0	0	1877	76
1870	61	William Hoe, *Newark*	20	0	0	1876	67
1871	64	Benjamin Gage, *London*	20	0	0	1873	66
1871	63	C. A. McShane, *London*	20	0	0	1876	68
1872	71	Maria Godbolt, *Norwich*	20	0	0	1873	72
1872	57	Price John Edwards, *Wigan*	15	0	0	1873	58
1873	68	John Tilbury, *London*	25	0	0	1876	71
1876	66	William Walton, *Peckham Rye*	15	0	0	1877	67

LIST OF SURVIVING PENSIONERS.

Number of Votes.	Name and Residence, and when Elected.	Amount per Year. £	s.	d.	Age when Elect	Present Age.
496	Francis Perry, *Bristol* 1858	20	0	0	43	63
743	†E. Cater Hallmarke, *London* 1859	20	0	0	56	75
522	Jane Bland, *London*... ... ... ,,	15	0	0	35	54
488	†M. A. Russell, *Maidenhead* 1860	15	0	0	55	73
471	†Ann Brooks, *Uxbridge* ... ... ,,	15	0	0	72	90
876	†Christian Crowther, *London* 1863	15	0	0	69	84
270	†Martha Style, *Weymouth* ... ... ,,	15	0	0	69	84
486	Sarah Cook, *London* 1865	25	0	0	48	61
643	†Catherine Neal, *Derby* 1866	15	0	0	62	74
	*†E. Thornthwaite, *Bath* ... ... ,,	15	0	0	62	74
810	Harriett Ann Cook, *London* 1867	20	0	0	56	67
471	Emery Walker, *London* ... ... ,,	15	0	0	48	59
702	Helen Kemp, *Bristol* 1869	15	0	0	48	57
256	†Maria Richardson, *London* ... ... ,,	15	0	0	64	73
491	†Emma Boddington, *Warwick*... 1870	15	0	0	61	69
	*Elizabeth Gage, *London* 1871	20	0	0	67	74
1037	Emma Osborne, *Bromley* ... ... ,,	20	0	0	51	58
629	Jane Sarah Stocken, *London*... 1872	25	0	0	59	65
589	George Burgess, *Ramsgate* ... ... ,,	20	0	0	74	80
	*Ann Tilbury, *London* 1873	15	0	0	73	75
393	Anne Fildew, *London* ... ... ,,	20	0	0	65	70
524	John Nichols, *Stourbridge* 1874	25	0	0	73	77
499	Eliza Devine, *London* ... ... ,,	15	0	0	43	47
755	Ann Ronald, *London* 1875	20	0	0	54	57
706	Charles Bailey, *London* ... ... ,,	20	0	0	66	69
489	Mary Ann Gowar, *Greenwich*... ... ... ,,	20	0	0	71	74
648	Anne Cooper, *London* 1876	20	0	0	52	54
464	Maria Taylor, *Warwick* ... ... ,,	15	0	0	55	57
	*S. M. Walton, *Peckham Rye*... ... ... ,,	15	0	0		
502	George Bateman, *Derby* 1877	20	0	0	66	67
499	Eliza Sherwell, *London* ... ... ,,	15	0	0	60	61
490	John Baillie, *London* ... ... ,,	20	0	0	85	86
604	Nicholas Symons, *Truro*... 1878	20	0	0	82	82
532	James Hicks Gowar, *Stratford* ... ... ,,	20	0	0	61	61
	Unsuccessful Candidates.					
377	Elizabeth Cole, *London*	...			...	...
343	George Callaway, *Southampton*	...			...	...
134	Jennette Elizabeth Kemp, *Bath*	...			...	...
124	Marianne Nash, *London*	...			...	...
70	Sarah Woodcock, *London*	...			...	...
38	Emma Platt, *London*...	...			...	...

* These Pensions were continued to the Widows by the Committee, under the 14th Rule, as altered and confirmed at the General Meeting, 22nd January, 1866.

† The pensions of the Pensioners whose names are thus marked were in 1871 each increased *Five Pounds* per annum.

THE BALANCE SHEET FOR THE YEAR 1877.

Dr.	£	s.	d.	£	s.	d.
To Donations	43	1	0			
Annual Subscriptions	505	1	0			
				548	2	0
Dividends on Funded Property				197	0	2
Repayment of Income Tax				6	5	7
Balance from 1876				125	17	11
				£877	5	8

Cr.	£	s.	d.	£	s.	d.
By Stationery, Printing, Advertisements, Postage, etc.				38	3	8
Collector's Poundage				27	8	1
Paid to Pensioners	630	0	0			
Ditto in Temporary Relief ...	67	0	0			
				697	0	0
Balance at Banker's				114	13	11
				£877	5	8

Examined and found correct, with a balance of £114 13s. 11d.

December 31st, 1877.
Amount of Stock in the Funds, £6,650.

G. A. THRUPP,
W. T. THORN,
JAMES ROBINSON,
} *Auditors.*

LIFE GOVERNORS.

SUBSCRIBERS and Donors have, for each guinea annually subscribed, or each donation of £10 10s., as many votes at elections for pensioners as there are pensioners to be elected.

Votes.			£	s.	d.
2	Isaac Aldebert, 57, Long Acre	1859	21	0	0
1	George Amery, 88, Crawford-street	1865	10	10	0
1	Thomas Archer (Hyde and Archer), 9, Paternoster Buildings, Newgate-street	1856	10	10	0
11	Barker and Co. (66, Chandos-street)	1856	105	0	0
	Second Donation	1863	10	10	0
	Third Donation	1870	52	10	0
1	C. E. Barlow, Esq., Queen's Buildings, Queen Victoria-street, E.C.	1869	10	10	0
1	M. T. Bass, Esq., M.P., Ranzemoon, Burton-on-Trent ...	1859	10	10	0
	Second Donation...	1860	5	5	0
1	S. Beale, Esq., M.P., Warfield Grove, Berkshire	1859	10	10	0
2	James Bennett, Esq., 130, Tulse-hill, Norwood-side, Surrey, S.W.	1857	21	0	0
	Second Donation...	1860	2	2	0
	Third Donation	1870	7	7	0
2	C. J. Bennett, Esq., 22, Bowyer-terrace, Clapham	1857	10	10	0
	Second Donation...	1860	5	5	0
	Third Donation	1869	7	7	0
	Fourth Donation	1870	5	5	0
1	Samuel Blackwell, 259, Oxford-street	1855	10	10	0
	Eleazer Booker, *deceased* (Booker and Sons, 13, Mount-street, Grosvenor-square)				
2	Edward John Booker	1856	31	10	0
2	William Booker				
	Second Donation	1869	1	1	0
	Third Donation...	1862	5	5	0
	Fourth Donation	1870	21	0	0
	William Boulnois, *deceased*, (Boulnois and Son, Baker-street Bazaar)	1856	105	0	0
6	William Allen Boulnois,				
2	Edmund Boulnois,	1863	10	10	0
	Second Donation...	1870	21	0	0

Votes.			£	s.	d.
2	R. J. Boyall, Grantham	1865	10	10	0
	Second Donation	1869	3	3	0
	Third Donation	1874	5	5	0
	Fourth Donation	1875	2	2	0
1	John L. Brigden, Western-road, Brighton	1872	10	10	0
2	His Grace the Duke of Buccleuch, Montagu House, Whitehall	1860	21	0	0
1	The Right Hon. the Baroness Burdett Coutts, 1, Stratton-street, Piccadilly	1866	10	10	0
1	Robert Lucas Chance (Messrs. Chance Brothers, Glass Works, near Birmingham)	1866	10	10	0
	Second Donation	1868			
1	W. F. Chapman, 5, Berkeley-villas, Bristol-road, Gloucester	1857	10	10	0
2	William Clode, Esq. (*as the first-named Executor of the late Lewis James Leslie, Esq.*), 5, St. Andrew's-square, Surbiton	1877	50	0	0
3	William Hopson Cook, Frederick Holdway, *deceased* — Cook and Holdway, 12, Mount-street, Grosvenor-square	1856	21	0	0
	Second Donation	1859	1	1	0
	Third Donation	1865	5	5	0
	Fourth Donation	1870	21	0	0
1	William Cook, Jun., 12, Mount-street	1869	10	10	0
1	John Edwin Corben, James Frederick Corben — Corben and Sons, 30, Great Queen-street	1862	10	10	0
1		1866	10	10	0
	David Davies, *deceased* — The Acacias, Upper Clapton	1856	10	10	0
1	W. G. Davies	1860	10	10	0
	Second Donation	1870	5	5	0
1	W. S. Doyle, Esq., 43, Wiltshire-road, Brixton, S.W.	1867	10	10	0
1	Charles S. Draper, 14, Charles-street, Soho, W.	1866	10	10	0
	Second Donation	1870	5	5	0
1	J. E. Duffield, 113, Aldersgate-street	1857	10	10	0
1	The Dowager Marchioness of Exeter, 32, Upper Brook-street	1869	10	10	0
1	Joshua East, Esq., 7, Curzon-street	1863	10	10	0
	Gilbert S. Edwards, *deceased* — Edwards, Son, and Chamberlayne, 21, Newman-street, Oxford-street	1857	21	0	0
11	George Edwards				
	Second Donation	1859	52	10	0
	Third Donation	1862	10	10	0
	Fourth Donation	1866	10	10	0
	Fifth Donation	1869	10	10	0
	Sixth Donation	1870	21	0	0
1	Thomas Elam, Firsleigh, Isleworth-on-Thames — T. and J. Elam, 33, Sackville-street, Piccadilly.	1856	21	0	0
2	John Elam,				
	Second Donation	1860	1	1	0
	Third Donation	1863	3	3	0
	Fourth Donation	1870	10	10	0
2	William Essex (Essex and Sons), 28, Stanhope-street, Lincoln's-inn-fields	1856	10	10	0
	Second Donation	1870	10	10	0
1	Thomas William Evans, Esq., M.P., Allestre Hall, Derby	1856	10	10	0

Votes.			£	s.	d.
2	William Stewart Freeman	Messrs. Aldridge, 2, Upper St. Martin's-lane — 1873	21	0	0
1	J. P. Gassiott, Jun., Esq., The Culvers, Carshalton, Surrey...	1864	10	10	0
1	Sir Francis Goldsmid, Bart., St. John's Lodge, Regent's-park...	1868	10	10	0
1	Samuel Glover, 1, Dean Street, Soho...	1874	10	10	0
1	Kelynge Greenaway, Esq., Warwick	1874	10	10	0
1	Charles Greenwood, Esq., 61, Nelson-square, Blackfriars...	1877	10	10	0
1	William Gutteridge, 82, Alexandra-road, Kilburn	1856	10	10	0
	Second Donation...	1860	1	1	0
1	Miss Gutteridge, 82, Alexandra-road, Kilburn	1865	10	10	0
1	Miss C. L. Gutteridge, ditto	1865	10	10	0
1	H. J. Hall, *deceased* / George Augustus Hall, / Edward Hall, / Second Donaton — Hall and Sons, 97 and 98, Long Acre	1857 / 1870 / 1862 / 1870	10 / 10 / 10 / 10	10 / 10 / 10 / 10	0 / 0 / 0 / 0
1	Hall, Miss, 4, Hereford-square, South Kensington	1872	10	10	0
1	Hall, Miss Catharine ... ... ditto	1872	10	10	0
2	Charles A. Hall, 13, Arklow-square, Ramsgate	1857	10	10	0
	Second Donation	1858	5	5	0
	Third Donation	1870	5	5	0
2	S. R. Harland, *deceased*, / Roberl Harland, / Second Donation ..... — Harland and Son, Merton, Surrey	1856 / 1870	52 / 10	10 / 10	0 / 0
1	Elkanah Healey, 16, Berry-street, Liverpool...	1856	10	10	0
1	Edward Hills, Dover	1859 / 1874	10	10	0
1	R. N. Hitchings, — Smith, Parfrey, & Hitchings, Wheel Works, Pimlico	1857 / 1874	10	10	0
1	Alexander Hoadley, care of Messrs. Grey, 1, Linden-grove, Peckham Rye, Surrey, S.E.	1868	10	10	0
2	K. D. Hodgson, Esq., M.P. (Messrs. Baring Brothers), 8, Bishopsgate-street Within, E.C....	1856	21	0	0
	Berks, W. Thompson, *deceased*, / Joseph Holland, *deceased*, / 3 William Holland, / 1 John Holland, — Holland and Holland.	1856 / 1866 / 1870	50 / 10 / 21	10 / 10 / 0	0 / 0 / 0
2	William Holland (*as the first-named Executor of the late John Holland, Esq.*), 5, Somers-place, Hyde Park	1872	50	0	0
1	William Holland, 5, Somers-place, Hyde Park	1874	10	10	0
4	John Holland	1856	10	10	0
	Second Donation...	1862	10	10	0
	Third Donation	1874	21	0	0
1	Mrs. E. D. Holland, 15, Vicarage-gardens, Campden-hill, Kensington	1874	10	10	0
5	Herbert M. Holmes, / 5 Arthur Holmes, — Derby, Lichfield, and London	1856	105	0	0
1	Charles Holmes, Derby	1862	10	10	0

Votes.				£	s.	d.
1	H. M. Holmes, Jun., Derby		1866	10	10	0
1	Arthur Bromley Holmes, Derby		1870	10	10	0
1	George Edward Holmes, Derby		1870	10	10	0
5	George Hooper,	Hooper and Co., 113, Victoria-street, Westminster, S.W.	... 1856	105	0	0
6	George N. Hooper,		...			
5	William Hooper,		... 1857	10	10	0
	Second Donation,		... 1860	10	10	0
	Third Donation,		... 1862	10	10	0
	Fourth Donation,		... 1866	10	10	0
	Fifth Donation,		... 1870	21	0	0
	Sixth Donation,					
	George Hooper, Second Donation		1860	5	5	0
1	Mrs. George N. Hooper		1859	10	10	0
5	Daniel D. Hopkyns, Esq., Wycliffe, St. Catharine's, near Guildford		1856	52	10	0
1	Henry Hopton, 67, George Street, Euston-square		1865	10	10	0
1	Thomas How, Esq., 12, Fenchurch-street, E.C. ...		1860-70	10	10	0
1	The Right Hon. J. G. Hubbard, M.P., 24, Princes-gate ...		1862	10	10	0
1	William Hunter, Jun. (Hunter's, 30, Moorgate-street) ..		1856	10	10	0
	David Ivall, deceased	Ivall and Large, Victoria-street, Westminster, S.W.	... 1860	21	0	0
1	William C. Large,		...			
	Second Donation		... 1870	10	10	0
1	James Ivall, 100, Talbot Road, Notting-hill		1856	10	10	0
1	Albert Russell Johnson, 101, Long Acre		1875	10	10	0
1	Charles W. Jolly, Torwoodlee, Torre Park, Torquay ...		1857	10	10	0
1	Vicesimus Kesterton, 121, Long Acre		1873	10	10	0
3	J. Lambert, 66, Great Queen-street		1857	10	10	0
	Second Donation		1869	15	15	0
	Third Donation		1870	5	5	0
3	John Morgan Leader (Laurie and Marner), 313, Oxford-street		1870	31	10	0
1	Right Hon. Lord Leigh, Stoneleigh Abbey, Kenilworth ...		1869	10	10	0
2	Miss Leslie, Rothsay Villa, Campden-hill, Kensington ...		1860	10	10	0
	Second Donation		1869	10	10	0
2	Miss F. A. Leslie, Rothsay Villa, Campden-hill, Kensington		1862	10	10	0
	Second Donation		1866	10	10	0
	Frederick W. Lucas, Brixton-hill, S.W.		1877	10	10	0
2	John Maythorne, Biggleswade		1864	10	10	0
	Second Donation		1870	10	10	0
1	Walter Meller, Esq., Broadlands, Clapham-common		1864	10	10	0
1	William Miller, 13, Cambridge-place, Paddington		1869	10	10	0
1	George Mills, 15, Goswell-road, E.C.		1865	10	10	0
	Second Donation		1870	5	5	0
1	Sir Moses Montefiore, Bart., 7, Grosvenor-gate		1868	10	10	0
1	Edward Morgan, 128, Long-acre		1856	10	10	0
1	H. Mulliner, Leamington and Northampton		1866	10	10	0
	Second Donation		1868			
1	Ernest W. Mulliner, 11, Binswood-crescent, Leamington ..		1870	10	10	0

Votes.			£	s.	d.
1	John Newson, 30, New Bond-street	1856	10	10	0
2	Henry Nicholson, Esq., 25, College-hill, E.C.	1872	21	0	0
3	John Noble,	Noble and Hoare, ...	1856	52	10	0
3	Thos. Rolls Hoare,	3, Cornwall-road,				
	Second Donation	Lambeth, S.E. ...	1870	10	10	0
1	Cedric Nurse, 43, Crawford-street, W.	1866	10	10	0
1	Right Hon. Lord Overstone, Northampton	1855	10	10	0
1	Jonah Oastler (Oastler and Palmer), Market-street, Bermondsey	1857	10	10	0
1	Joseph Offord, 79, Wells-street	1870-73	10	10	0
1	Joseph Offord, Jun., 79, Wells-street	1873	10	10	0
1	Thomas Parsons, 40, Long Acre	1861	10	10	0
5	John W. Peters,	Peters and Sons, ...	1856	105	0	0
5	Wm. W. Peters,	Park-street, Grosvenor-square,				
5	Joseph Peters,	and Upper George-street				
	Second Donation	...	1870	52	10	0
4	John W. Peters	1857	10	10	0
	Second Donation	1860	10	10	0
	Third Donation	1862	10	10	0
	Fourth Donation	1866	10	10	0
1	Mrs. John W. Peters	1865	10	10	0
4	John W. Peters (*as the first-named Executor of the late Thomas Peters, Esq.*)	1863	100	0	0
2	W. W. Peters, 126, Westbourne-terrace...	1857	10	10	0
	Second Donation...	1860	10	10	0
5	Joseph Peters, 20, Upper Hamilton-terrace, St. John's-wood	1857	10	10	0
	Second Donation	1860	10	10	0
	Third Donation	1862	10	10	0
	Fourth Donation	1866	21	0	0
	Fifth Donation	1869	5	5	0
1	Mrs. Joseph Peters	1858	10	10	0
1	Miss Mary Ada Peters	1866	10	10	0
1	Miss Florence Nightingale Peters	1866	10	10	0
	John Philipson, 9, Victoria-square, Newcastle-upon-Tyne	1856	10	10	0
2	Henry Powell, Herne-hill, Dulwich	1861	10	10	0
	Second Donation	1862	10	10	0
	Third Donation	1869			
	Fourth Donation	1870	5	5	0
1	Henry Reading, 14, Riding-house-street	1856	10	10	0
	George Rigby, *deceased*,	... ...	1856	10	10	0
3	J. Robinson,	Rigby and ...	1857	10	10	0
	Second Donation	Robinson ...	1860	10	10	0
	Third Donation	... ...	1862	10	10	0
	Fourth Donation	... ...	1868			
	James Robinson, Masbro' Lodge, Southey-road, New Wimbledon	1870	5	5	0

Votes.			£	s.	d.
4	James Rock, Brookwood, Hollington, Hastings	1856	10	10	0
	Second Donation	1860	5	5	0
	Third Donation	1862	3	3	0
	Fourth Donation...	1866	5	5	0
	Fifth Donation	1867	5	5	0
	Sixth Donation	1868	5	5	0
	Seventh Donation	1870	10	10	0
2	Israel Rogers, 56, South Audley-street	1856	10	10	0
	Second Donation	1870	10	10	0
1	Henry Rogers, 56, South Audley-street	1867	10	10	0
	Second Donation	1870	5	5	0
1	Arthur F. Rolls, 28, Poole-street, Hoxton	1876	10	10	0
2	Baron Lionel de Rothschild, M.P.	1870	26	5	0
2	Alfred de Rothschild, Esq.	1870	26	5	0
1	J. C. Rubidge, 14, South-street, Manchester-square	1857	10	10	0
	Second Donation	1870	5	5	0
3	Charles Saunderson, Esq., 58, Threadneedle-street, E.C. ...	1873	21	0	0
	Donations	1877	12	12	0
	Robert Shanks, *deceased* } R. and F. Shanks, 4, Great	1856	10	10	0
1	Frederick Shanks } Queen-street	1870	10	10	0
1	William Robert Shaw (Shaw and Morris), Wyld's Rents, Bermondsey	1857	10	10	0
1	The Rt. Hon. Earl of Shrewsbury, Ingestre Hall, Staffordshire	1878	10	10	0
	Robert Silk, *deceased*, }	1856	10	10	0
1	William Silk, } Silk and Sons, 8, Long-acre	1873	21	0	0
1	Robert Silk, }				
1	Charles E. Smith, Silvermere, Cobham, Surrey	1861	10	10	0
	William Stamper, *deceased*, } Stamper and Son, Wands-		9	9	0
	Second Donation } worth	1870	5	5	0
1	Thomas Rawston Starey, Nottingham	1856	10	10	0
1	Joseph Stenson, 3, Springfield-villas, Groombridge, near Tunbridge Wells	1865	10	10	0
1	W. J. Stephens, 53, Park-street, Grosvenor-square	1872	10	10	0
5	Frederick Stocken, }	1857	52	10	0
	Alfred Stocken, *deceased*, } 5, Halkin-street, Belgrave-square	1870	21	0	0
	Second Donation }				
	Richard Tattersall, *deceased*, } Messrs. Tattersall, Knights-	1857	10	10	0
1	Edmund Tattersall, } bridge	1873	21	0	0
1	Thomas Pain }				
5	William Henry Taylor, Clipstone House, Bath-road, Hounslow	1856	26	5	0
	Second Donation...	1857	10	10	0
	Third Donation	1860	5	5	0
	Fourth Donation...	1866	5	5	0
	Fifth Donation	1870	10	10	0
3	William T. Thorn, }	... ...	1856	21	0	0
2	Frederick Thorn }	... ...				
	Second Donation } W. and F. Thorn,	... ...	1857	2	2	0
	Third Donation } 19, Great Portland-street,	... ...	1860	2	2	0
	Fourth Donation } Oxford-street.	... ...	1862	2	2	0
	Fifth Donation }	... ...	1866	5	5	0
	Sixth Donation }	... ...	1870	21	0	0

Votes.			£	s.	d.
1	William T. Thorn, 11, Ladbroke-square, W	1876	10	10	0
1	Mrs. Frederick Thorn, 8, Addison-road, Kensington, W ...	1869	10	10	0
1	William T. Thorn, Jun., 11, Ladbroke-square, W	1873	10	10	0
1	W. Pole Thornhill, Esq., M.P., 44, Eaton-square	1860	10	10	0
	Charles J. Thrupp, *deceased*, Thrupp and Maberly, 269, Oxford-street, ...	1856	21	0	0
3	George A. Thrupp, ...	1866	10	10	0
	Second Donation	1870	10	10	0
1	George Maberly, ...	1868	10	10	0
1	G. H. Maberly, ...	1870	10	10	0
1	George A. Thrupp, in memory of the late Charles Joseph Thrupp, Esq	1872	10	10	0
1	George Herbert Thrupp, 111, Maida-vale	1875	10	10	0
2	James Tillyer, 321, Oxford-street	1859	10	10	0
	Second Donation...	1860	1	1	0
	Third Donation	1862	1	1	0
	Fourth Donation...	1865	10	10	0
3	Henry James Turner, Turner and Son, 9, Broad-street, Bloomsbury.	1856	21	0	0
	Second Donation	1870	10	10	0
1	Sir James Tyler, Pine House, Holloway...	1862	10	10	0
1	Richard Tyrell, 56, Great Queen-street	1863	10	10	0
1	George Walker, Hanworth Hall, Norfolk	1856	10	10	0
	Second Donation...	1862	1	1	0
1	Thomas Henry Wallis, 64, Long Acre	1857	10	10	0
3	J. Ward, 5, Leicester-square	1857	10	10	0
	Second Donation...	1860	10	10	0
	Third Donation	1862	5	5	0
	Fourth Donation...	1866	5	5	0
1	Mrs. J. E. Watson, Sutherland House, High-street, Clapham	1859	10	10	0
1	Lady Charles Wellesley, Cornholt-park, Andover...	1862	10	10	0
1	Right Hon. Earl of Wharncliffe, Wortley Hall, Sheffield ...	1866	10	10	0
1	Joseph Whittingham, Seymour House, Peckham	1856	10	10	0
1	Thomas Whittingham, 136, Long Acre	1862	10	10	0
1	Alfred Aurelius Clark, Wilkinson, Heywood, and Co., Battle-bridge, King's-cross.	1856	31	10	0
1	John S. C. Heywood,				
1	George T. Heywood,				
	Arthur B. Winterbotham, Hunt and Winterbotham, Cam Mills, Dursley, Gloucester.	1869	10	10	0
3		1872	10	10	0
1	B. Hunt,	1874	10	10	0
		1877	10	10	0
	John Woodall, *deceased* Woodall and Son, Orchard-street	1856	31	10	0
3	John Francis Woodall,				
1	Charles Harris Woodall,				
	Second Donation	1857	10	10	0
	Third Donation	1870	10	10	0
1	Miss Woodall, Orchard-street	1871	10	10	0
2	Walter Balmer Woodall, Orchard-street...	1862	10	10	0
	Second Donation...	1869	5	5	0
	Third Donation	1872	5	5	0

Votes.				£	s.	d.
1	John Wright, Harrogate		1861	10	10	0
1	Mrs. Wyburn, 66, Harley-street		1870	10	10	0
2	Harold Turner, *deceased*, Edward Warren, Second donation,	Wyburn and Co., 121, Long Acre	1856 1862 1870	10 10 10	10 10 10	0 0 0

NAMES OF THOSE WHO HAVE SERVED THE OFFICES OF

HONORARY TREASURER.

Mrs. G. A. THRUPP ... ... From 1856 to 1865
The late Mr. HENRY BLACK ... ... ,, 1865 to 1867
Mr. EDWARD HALL ... ... Aug., 1867 to 1878

OR

HONORARY SECRETARY.

The late Mr. L. J. LESLIE ... ... From 1856 to 1867
The late Mr. L. JOHN LESLIE ... ... ,, 1861 to 1864
Mr. FREDERICK THORN ... ... 1867 and 1868
Mr. JOHN F. WOODALL ... ... From 1868 to 1878

DECEASED LIFE GOVERNORS.

Those marked thus (*) were also Annual Subscribers.

		£	s.	d.
Ailesbury, K.G., Most Noble the Marquis of	1862	31	10	0
Allen, Alderman W. F....	1868	10	10	0
Beazley, George	1867	10	10	0
*Back, Henry	1857–62	33	12	0
Black, John	1858-64	11	11	0
Blake, James Joseph, Esq.	1863-8	10	10	0
*Booker, Eleazer ... See Booker and Sons, *Boulnois, William ... See Boulnois and Son, } Preceding list.				
Bowley, Robert K.	1866	10	10	0
Bressey, R. N....	1867	10	10	0
*Carr, William	1872	21	0	0
Chesterfield, The Right Hon. the Earl of	1862	10	10	0
Cook, William...	1856-7	15	15	0
Cox, William Thomas, Esq., M.P.	1866	10	10	0
*Holdway, Frederick ... ...(See Cook and Holdway.)				
Davies, David ... ...(See Davies and Son.)				
*Dixon, James	1857-64	11	11	0
*Edwards, Gilbert S. (See Edwards, Son, and Chamberlayne)				
*Eives, John	1857	10	10	0
*Ellis, Thomas	1856–7	26	5	0
Gutteridge, G. T. W.	1862	10	10	0
*Hall, H. J. ... ...(See Hall and Sons.)				
Harland, S. R. ... ...(See Harland and Son.)				
*Holden, Andrew, T.	1857	10	10	0
*Holland, John Sen....	1856–70	15	15	0
*Holland, Joseph, and *Thompson, Berks. W. } ... (See Holland and Holland.)				
*Huntingtower, The Right Hon. the Lord....	1864	10	10	0
Ingram, Maynell, Esq.	1860	10	10	0
Irving, Joseph H., Esq....	1867	10	10	0
*Ivall, David ... ... (See Ivall and Large.)				
*Jemmett, George	1856–7	15	15	0
*Kesterton, Edwin	1856–70	47	5	0
*Lansdowne, The Most Noble the Marquis of	1857–62	67	15	0
Laurie and Marner....	1856–7	23	0	0
*Leslie, Lewis James	1856–74	21	0	0
*Leslie, L. John...	1859–70	21	0	0
*Lowe, John	1856	10	10	0

		£	s.	d.
Luck, Edward Thomas, Esq.	1871	10	10	0
Magenis, F. Esq.	1858	10	10	0
Mansell, Henry, Esq.	1858	10	10	0
*Mason, William Henry	1856–70	21	0	0
*Mills, George	1865	10	10	0
Neeld, Lady Caroline	1856	10	10	0
Nurse, John	1856	10	10	0
Oxley, John	1865	10	10	0
Penny, William B.	1856	10	10	0
*Peters, Thomas	1856–7	157	0	0
*Philipson, Leonard W.	1870	10	10	0
Pierrepont, The Hon. P. S.	1859	26	5	0
Potter, G. W. K., Esq.	1857–70	28	7	0
*Rigby, George (See Rigby and Robinson, preceding list.)				
Robson, John	1857	10	10	0
*Rogers, W. Sen. ... *Rogers, William ... } Rogers and Son, Bristol ...	1856	52	10	0
Rolls, H. ... ... (Rolls Brothers and Limons.)	1857	10	10	0
Salomons, Alderman Sir David, Bart., M.P.	1862–70	10	10	0
Salmon, Frederick, Esq.	1857	10	10	0
*Shanks, Robert H... ... ... (See R. and F. Shanks.)				
Shillibeer, George	1862	10	10	0
Shrewsbury and Talbot, the Right Hon. the Earl of ...	1860	10	10	0
Shrewsbury, the Right Hon. the Earl of	1860–9	10	10	0
*Silk, Robert ... ... (See Silk and Sons.)				
*Smith, Seth ... ... (Pantechnicon.)	1856	105	0	0
*Southey, William	1856	10	10	0
*Stamper, William ... ... (See Stamper and Sons.)				
*Stocken, Alfred ... ... (See F. and A. Stocken.)				
*Thrupp, Charles J. ... ... (See Thrupp and Maberly.)				
Thrupp, Henry Joseph	1870	10	10	0
*Turner, Harold ... ... (See Wyburn and Co.)				
Turrill, Henry Lewis	1863	21	0	0
Whitbread, H. W., Esq...	1860	10	10	0
*Willoughby, Solomon	1856–7	11	11	0
*Woodall, John... ... ... (See Woodall and Son)				
Woodall, Mrs. John F.	1866	10	10	0
Wright, George	1856	10	10	0

LEGACIES.

The late Thomas Peters, Esq.	1863	100	0	0
The late R. G. Marner, Esq.	1866	200	0	0
The late John Holland, Esq.	1872	50	0	0
The late Lewis James Leslie, Esq....	1877	50	0	0

LIST OF DONATIONS

NOT CONFERRING VOTES.

Subscribers and Donors have, for each guinea annually subscribed, or each donation of £10 10s., as many votes at elections for pensioners as there are pensioners to be elected.

	£	s.	d.
The Worshipful Company of Coach Makers and Coach Harness Makers of London	50	0	0
The Worshipful Company of Mercers	21	0	0
Adams and Richards, Messrs., Wednesbury	1	1	0
Ade, Edward, Esq.	1	1	0
Addenbroke, G., Esq., Greenhill, near Wolverhampton	1	1	0
Aldebert, Mr. J., Jun., Long Acre	1	1	0
Alford, Mrs. Ann, Newington Butts	2	2	0
Allen, Mr. John, 72, Long Acre	5	5	0
Allen, The late Mr. J. W.	3	3	0
Anderson, Mr. John, 43A, Green-street	1	1	0
Anonymous, B., per Treasurer	5	5	0
,, D., per Messrs. Rigby and Robinson	5	0	0
,, R. E., per Mr. W. Hooper	2	2	0
,, per Messrs. Rigby and Robinson	2	3	0
,, W. G., per Messrs. Hall and Sons	1	1	0
,, Camberwell, per Mr. J. Holland	1	1	0
,, B., per Messrs. Rigby and Robinson	1	1	0
,, A Carrriage Owner	1	0	0
,, 1872	100	0	0
,, by a Member of the Coaching Club, 1873	5	0	0
,, per Mr. J. W. Peters, 1876	50	0	0
Applin, Mr. W., 15, Mount-street	2	2	0
Armstrong, Mr., Huntingdon	2	0	0
Atkins, Mr. Thomas, Regent's-park-basin	5	5	0
Austin, The late Mr.	2	0	0
Baker, Mr., 3, Mill-street, Lambeth	1	1	0
Baker, Mr.	1	1	0
Baldock, Miss, Eastbourne	1	1	0
Barlow, Mrs., Queen-street, Grosvenor-square	1	1	0
Barratt, A. W., Esq., London-street, Ratcliffe	1	1	0
Bartlett and Son, Messrs., 375, Kennington-road	5	0	0

	£	s.	d.
Berger and Sons, Messrs.	1	1	0
Bingley, Mr. A., Bath Hotel, 156, Piccadilly	6	6	0
Black, Mr. Benjamin	7	1	0
Boden, Mr. W. J., 163, Waterloo-road	2	2	0
Bonner, Mr.	0	10	0
Bott, The late J., Esq.	2	2	0
Bramston, T. W., Esq., M.P.	2	2	0
Briggs, Mr. G., 45, Wigmore-street	5	5	0
Brodie, Mrs., 2, Harley-street	1	0	0
Brown, Owen, and Co., Messrs. Birmingham	2	2	0
Brown and Marshall, Messrs., Birmingham	5	5	0
Bryan and Co., Messrs., 8, Dacre-street, Westminster	6	6	0
Buckingham Bros., Messrs., 33, Broad-street	2	2	0
Burgess, Mr., Deal	0	10	0
Burnett and Co., Messrs., Covent-garden	1	1	0
Burt, Mr. John U., Willow-row, Goswell-road	1	1	0
Buthwell, A., Esq., Gloucester-place, Regent's-park	1	1	0
Callow, The late Mr. T. W.	3	3	0
Carpenter, Mr. W., Staines	2	2	0
Carr, Mr. J., 15, Warwick-street, Golden-square	2	2	0
Caston, Mr. W., 25, Gun-street, Bishopsgate	1	1	0
Caston, Mr., Green-street, Spitalfields	1	1	0
Chambers, Mrs., Rosedale-villa, Albion-road, Hammersmith	1	1	0
Chater, Mr. W., Bishopsgate-street	2	2	0
Chappelow, Mr. J., 138, Long Acre	1	1	0
Coates, Mr. T., 66, Worship-street	1	1	0
Cole, Mr., Kensington	1	1	0
Colvill, C. R. Esq., M.P., Lullington, near Burton-on-Trent	3	3	0
Cooper, the late Mr. J.	1	1	0
Cooper, Mr. J., Jun., 111, Long Acre	1	1	0
Cooper and Blackford, Messrs., 140, Long Acre	5	5	0
Cousins, Mr. E., Oxford	4	4	0
Cowland, John, Esq., Jun., 17, Woburn-place	1	1	0
Cundall, Mr. Thomas, 54, Bermondsey-street	1	1	0
Dalton, Barton and Co., Messrs. (Limited), 16 and 17, King-Edward-street, and 13, 14, and 15, Bull and Mouth-street, E.C., and at Coventry	2	2	0
Davidson, B. Esq., 6, Albert-terrace, Knightsbridge	5	5	0
Davis, Messrs. S. and W., 159 and 160, Whitechapel-road	2	2	0
Davis, Mr. E., 14, Long-lane	2	2	0
Deed and Sons, Messrs., 451, Oxford-street	6	6	0
Devenish, J. A., Esq., Weymouth	1	1	0
Dickeson, Mr. John, 157, Drury-lane	1	1	0

	£	s.	d.
Disturnal, Mr. Wednesbury	1	1	0
Drake, Mr. J., 9, Mincing-lane	1	1	0
Durant, R. J., Jun., Esq., 11, Copthall-court, City	5	5	0
Dyer, Mr., 93, Long Acre	1	1	0
Dyott, Colonel, M.P., Freeford Hall, Lichfield	1	1	0
Edell, Mr. James, 6, Size-lane	2	2	0
Edwards, Mr., 21, Newman-street (*votes used*)	31	0	0
Ellington and Ridley, Messrs., 89, Watling-street	1	1	0
Espin, Mr. John, 15, Regent-street	1	1	0
Falcke, Mr.	1	1	0
Felton, Mr. C., Halkin-place, Belgrave-square	2	2	0
Fenton, Roger, Esq., 2, Albert-terrace	2	2	0
Fillingham, Mr., 278, Whitechapel-road	1	1	0
Foley, The late Right Hon. Lord	5	0	0
Fox Brothers, Messrs., Sleaford	1	1	0
Gadsdon, Messrs. C. and B., 40, Union-street, Bishopsgate	5	5	0
Gee, Thomas, Esq., 1, Hyde-park-gardens	1	1	0
Gibbins Brothers, Messrs., 30, London-wall	2	2	0
Gibson, Mr. Thomas, Cape Works, Birmingham	5	0	0
Gingell, James, Esq., Kent and Essex Yard, Whitechapel High-street, (*votes used*)	10	10	0
Goff, W. H., Esq., Dalston	1	1	0
Gower, Mr., 56, Barbican	1	1	0
Graham, John, Esq., Charlton Chambers, Regent-street	5	5	0
Greaves, E., Esq., M.P., Barford, Warwick	2	2	0
Griffiths, Mr. J., Dieppe	0	10	0
Gruneisen, C. L., Esq., 16, Surrey-street, Strand	1	1	0
Hale, Mr. S. W., 45, Park-lane	5	5	0
Hanbury, R., Esq., M.P., 10, Upper-Grosvenor-street	5	5	0
Hanbury, J. C., Esq., 30, Carlton-villas, Maida-vale	1	1	0
Hancock, —, Esq., Mayor of Weymouth	1	1	0
Harms, List, and Co., Messrs., 51, Bunhill-row, E.C.	5	5	0
Harwood, H. H., Esq., 29, Cleveland-square	5	5	0
Haywood, Thomas B., Esq., Western-lodge, Tulse-hill	3	3	0
Hayward, The Late Mr. J. S.	5	5	0
Hensman and Nicholson, Messrs., College-hill	1	1	0
Herbert, M. B., Esq., 24, Spring-gardens	1	1	0
Higham, Mr., Hart-street, Grosvenor-square	2	2	0
Hill, Mr.	0	10	6
Hogg, Sir J. W., Bart., 4, Carlton-gardens	2	2	0
Holroyd, Noble, and Collyer, Messrs., Halifax	2	2	0

	£	s.	d.
Honeywill, Miss, Rosedale-villa, Albion-road, Hammersmith	1	1	0
Hopper, Mr. W., Great Queen-street	7	7	0
Hopton, Mr. Charles, 67, George-street	1	1	0
In memoriam, 1870	10	10	0
Jarvis, R. T., Esq., 13, Hart-street, Bloomsbury	1	1	0
Jenks, Mr. R., Albert-square	1	1	0
Jones, Mr. C.	6	6	0
Jones, Mr. D., 18, Castle-street, Merthyr Tydvil	1	1	0
Jones, Mr. E.	0	10	0
Jones, Mr. Thomas W., Horse Fair, Birmingham	6	6	0
Jones, W., Esq., 61, Basinghall-street	1	1	0
Jones, W. C., Esq., Walmesley, near Leigh, Lancashire	2	2	0
Joyce, Mr. J., 129, High-street, Whitechapel	5	5	0
Keen, Mr., 41, North Audley-street	2	10	0
Kinder and McNaught, Messrs., Worcester	5	5	0
Klaftenberger, Mr. C. F., Regent-street...	0	10	6
Last, Mr. Samuel, Oxford-street	2	10	0
Laver, Mr.	1	1	0
Lenny, The late Mr. Charles	1	1	0
Leslie, The late Mr., Fees received by, while acting as Clerk (*pro tem.*) of the Worshipful Company of Coachmakers and Coach-Harness Makers of London, 1872	2	0	0
Littlewood, Mr. G., 13, Little Queen-street, Holborn	1	1	0
Loft, Miss, Hastings	1	1	0
Longden, F., Esq., Mayor of Derby	1	1	0
Lucas, Mr. H., 8, Broad-court, Long Acre	1	1	0
Macaulay, Mrs., 27, Curtain-road	1	1	0
Mann, Mr., 7, Anson-road, Tufnell-park, N.	5	5	0
Marner, Mr. H. G.	1	1	0
Martinelli, Mr. L., 57, Prince of Wales'-crescent, Camden Town ...	5	5	0
Mason, Messrs. J. and S., Deddington, Oxon	2	2	0
Maule, Mr. W., and Maule and Sons, Messrs., Alnwick and Berwick-on-Tweed	3	3	0
Miles, Mr. J,, 22, Primrose-street	1	1	0
McEvoy, Mr.	1	1	0
Morgan, Mr., 128, Long Acre	1	1	0
Moss, Mr., 98, Euston-road	0	10	0
Mulliner, per R. B. Esq., Coachbuilders of Liverpool, being a Fund collected but not used, 1872	3	5	0
Munday, W., Esq., M.P., Markeaton Hall, Derby	3	3	0

	£	s.	d.
Neville, Lady Dorothy, Upper Grosvenor-street	1	1	0
Nicholls, Mr. John, Stourbridge	1	10	0
Nitsch, Mr. L. F., 100, Mount-street	1	11	6
Normington, Mr. E, N., 8, Netherwood-street, Kilburn	4	4	0
Okeover, H. C., Esq., Ashbourne, Derby	5	0	0
Overbury, B., Esq., 19, Gresham-street	1	1	0
Paris, C. S., Esq., 10, St. James's-street	5	0	0
Parker, Mr. Frederick, Cambridge	2	2	0
Parkin and Curll, Messrs.	5	5	0
Parry, Thomas, Esq., Arundel House, Balham	1	1	0
Patrick, Mr. J., 51, Whitechapel-road	1	1	0
Peake, Mrs., 5, Lisle-street, Leicester-square	1	10	0
Penny, Mr. H., 4, York-place	5	5	0
Pfeil and Stedall, Messrs. 6, Broad-street, Bloomsbury	5	5	0
Phillips, Mr.	0	10	0
Pinchin and Johnson, Messrs., New-road, St. George's-in-the-East	2	2	0
Potts, W., Esq., North Audley-street	1	1	0
Powell, James H., Esq.	1	1	0
Poynder, T., Esq., 21, Upper Brook-street	5	5	0
Reid, Mr. G., 18, George-street, Hanover-square	1	1	0
Richards, Mr Edwin, Wednesbury	2	2	0
Ridges, Mr. J. E., Wolverhampton	2	0	0
Robarts, A. W., Esq., 26, Hill-street, Berkeley-square	5	5	0
Rolls, the late Mr. H.	1	1	0
Ronald, the late Mr.	2	2	0
Rose, T. H., Esq., 3, Elizabeth-street, Eaton-square	2	2	0
Ross, John (Brown, Marshall, and Co., Messrs.), Birmingham	3	3	0
Salsbury, Mr., 133, Long Acre	3	3	0
Salsbury, Mr., Jun., ditto	0	10	6
Sandeman, Captain A. G., 5, Ennismore-gardens	5	0	0
Saunders, Mr. C.	1	1	0
Schlusser, Alexander, Esq., Bedford-hill, Balham	2	2	0
Sedgwick, F. J., Esq.	5	5	0
Seymer, H. Kerr, Esq., M.P., 62, Eccleston-square	2	2	0
Sheen, Mr. J. R.	1	1	0
Slater, Mr. Samuel, Burton-on-Trent	0	10	6
Slatter, Mr. H., Long Acre	2	2	0
Slatter, Mr George, ditto	2	2	0
Smith, Mr., Haltwhistle	2	2	0
Solomon, J. P., Esq., 18, Upper Wimpole-street	2	2	0
Stedall, Colonel	5	5	0

	£	s.	d.
Stohwasser, Mr. Joseph, Conduit-street	1	1	0
Stone, G., Esq., Cockspur-street	1	1	0
Strong, Mr., 29 and 30, Long Acre	5	5	0
Sturt, C., Esq., M.P., 14, Grosvenor-square	2	2	0
Symes, Mr., Bridport	0	10	6
Tarratt, —, Esq., Ludford House, Ludlow	1	1	0
Thomas, G. E., Esq., 8, Regent-street	1	1	0
Thomson, Mr. George, Stirling, per Messrs. Hunt and Winterbotham	1	9	6
Thorn, Mr. A., Winchester-terrace, Chelsea	1	1	0
Thrupp, John, Esq., Bell-court, Doctor's-commons	2	2	0
Thrupp, C. J., Esq., 3 Tanfield-court, Temple	2	2	0
Tillman, Messrs. G. and H., 22, Tysoe-street, Clerkenwell	1	1	0
Tillman, Mr. G. L., Jun., 4, Skynner-street	2	2	0
Tippets, J. B., Esq., 5, St. Thomas Apostle	1	1	0
Todd, Mr. 34, Craven-road, Westbourne-terrace	5	5	0
Townshend, Capt. Henry, Stretton Hall, Ashby-de-la-Zouch	3	3	0
Trimlestown, Dowager Lady, Ludlow	1	1	0
Turner, Messrs. W. and A. J., Ipswich	1	1	0
Turner, Mr. C. R., 5, Little Queen-street, Holborn	1	0	0
Vezey, Messrs. E. and H., Long Acre, Bath	9	7	0
Warner, Mrs., Highbury	1	1	0
Watlington, J. W. P., Esq., Harlow	5	5	0
Westminster, His Grace the Duke of, K.G.	5	0	0
Wheeler, Kinder, and Co., Messrs., Leicester...	3	3	0
Whittingback, Mr., Leicester-square...	2	2	0
Whittingham and Wilkin, Messrs. Thomas, 136, Long Acre...	3	3	0
Wilsher, Mr., 177, Drury-lane	0	10	6
Willis, Mr., Thatched House Tavern, 85, St. James's-street	1	1	0
Windsor, Baroness, 55, Grosvenor-street	2	2	0
Wood, Mr. T., 19, Greek-street, Soho	1	1	0
Woodall, Mr. J. F., Fees received by, while acting as Clerk (*pro tem.*) of the Worshipful Company of Coachmakers and Coach Harness Makers of London, 1872...	4	0	0
Wright, Henry, Esq., Kensington	5	0	0

LIST OF ANNUAL SUBSCRIBERS,

WITH THEIR VOTES;

AND OF DONATIONS RECEIVED IN 1877.

Subscribers and Donors have, for each Guinea annually subscribed, or each donation of £10 10s., as many votes at elections for pensioners as there are pensioners to be elected.

Votes.		Donation. £ s. d.	Annual. £ s. d.
1	Abbott, Mr. Walter William, 194, Oxford-street	...	1 1 0
1	Adams, Mr. Edward, 75, Albany-street, N.W.	...	1 1 0
5	Aldebert, Mr. I., 57, Long Acre	...	5 5 0
1	Alford and Alder, Messrs., 53, Newington Butts	...	1 1 0
2	Allen, Mr. John, 72, Long Acre	...	2 2 0
1	Allen, Mr. J. M., 3, Cornwall-road, Lambeth, S.E. ...	...	1 1 0
1	Allman, Mr. Joseph, Lichfield	...	1 1 0
1	Andrews, Mr. Charles, Midland-road, Station-street, Derby...	...	1 1 0
2	Andrews, Mr. Richard, Above-bar, Southampton	...	2 2 0
1	Angas, Mr. Silas T., 34, Friday-street, E.C.	...	1 1 0
2	Angus and Co., Messrs. Henry, Newcastle-on-Tyne ...	...	2 2 0
1	Applin, Mr. W., 53, Mount-street, Grosvenor-square ...	...	1 1 0
2	Atkinson and Philipson, Messrs., 15, Pilgrim-street, Newcastle-on-Tyne...	...	2 2 0
1	Baker, Mr. John, Stafford	...	1 1 0
1	Baker, Mr. Henry, 3, Mill-street, Lambeth	...	1 1 0
5	Barker and Co., Messrs., 66, Chandos-street	...	5 5 0
1	Barlow, Mr., 6, Queen-street, Grosvenor-square	...	1 1 0
1	Barnard and Son, Messrs., 339, Oxford-street...	...	1 1 0
1	Bartlett, Mr. James, 375, Kennington-road	...	1 1 0
1	Bartlett, Mr. Walter, 375 and 377, Kennington-road ...	...	1 1 0
3	Barton and Sons, Messrs., Quayhead, Bristol	...	3 3 0
1	Benison Brothers, Messrs., Bedford-street, Leamington ...	...	1 1 0
3	Bennion and Healey, Messrs., 16, Berry-street, Liverpool	...	3 3 0
1	Berger and Sons, Messrs., Lewis, 4, Well-court, Queen-street, E.C., and Homerton...	...	1 1 0
	Biddlecombe, Mr. J., Great Queen-street...	...	1 1 0
1	Black, Mrs. Henry, 18, North-villa, Camden-square ...	...	1 1 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
1	Black, Mr, Edwin, 15, Percy-street, Bedford-square ...	...	1 1 0
	Boden, Mr. W. J., 163, Waterloo-bridge-road...	...	1 1 0
1	Bolton, Mr. G., 53, Park-street, Grosvenor-square	...	1 1 0
5	Booker and Sons, Messrs., 13, Mount-street, Grosvenor-square	...	5 5 0
1	Boorman, Mr. T., 9, Highs-treet, Wandsworth	...	1 1 0
5	Boulnois, Messrs. W. and E., Carriage Bazaar, Baker-street	...	5 5 0
	Boswell, Mr., 36, Borough-road...	...	1 1 0
1	Boyall, Mr. R. J., Grantham...	...	1 1 0
1	Bradfield, Mr. Richard, 53, Park-street, Grosvenor-square	...	1 1 0
1	Brassey, Thomas, Esq., M.P., 4, Great George street, Westminster, S.W....	...	1 1 0
1	Briggs, Mr., 18, Queen's-road, Bayswater...	...	1 1 0
1	Bromley, Mr., 2, Clapham-road...	...	1 1 0
1	Brown, Mr. L., Steam Saw Mills, Leicester	...	1 1 0
1	Buckingham, Mr. John, 33, Broad-street, Bloomsbury ...	...	1 1 0
	Burton, The late William S., Esq., South Villa, Inner-circle, Regent's-Park	...	1 1 0
1	Bush, Hinson, and Bush, Messrs., Nottingham	...	1 1 0
10	Company of Coach Makers and Coach Harness Makers of London, The Worshipful	...	10 10 0
2	Carpenter, Mr. William, Staines	...	2 2 0
1	Carter, Mr. Francis, 130, High-street, Ryde, Isle of Wight	...	1 1 0
1	Caslake, Mr. William, Sevenoaks, Kent	...	1 1 0
1	Castle, Mr. J., Lombard-street, Newark-on-Trent	...	1 1 0
1	Catt Brothers, Messrs., Limited, Ipswich	...	1 1 0
3	Chance Brothers and Co., Messrs., Glass Works, near Birmingham	...	3 3 0
2	Chapman, Mrs., 162, Goldhawk-road, Shepherd's-bush	...	2 2 0
1	Cholerton and Co., Messrs., Derby	...	1 1 0
2	Cockshoot and Co., Messrs. Joseph, 39, New Bridge-street, Manchester	...	2 2 0
1	Collins, Mr. C., 19, Baalzephon-street, Long-lane, Borough	...	1 1 0
5	Cook and Holdway, Messrs., 12, Mount-street, Grosvenor-square	...	5 5 0
1	Cooper and Blackford, Messrs., 140, Long Acre	...	1 1 0
2	Cooper, Mr. F., 107, High Holborn...	...	2 2 0
1	Cooper, Mr. James C., 111, Long Acre	...	1 1 0
1	Cole, Mr. W., 5, Young-street, Kensington	...	1 1 0
	Connolly, The late Mr. John, 11, Wharfdale-road, King's-cross	...	1 1 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
4	Corben and Sons, Messrs., 30, Great Queen-street... ...	...	4 4 0
2	Corben Brothers, Messrs., Twickenham	...	2 2 0
1	Cousins, Mr. Edward, Alfred-street, High-street, Oxford	...	1 1 0
1	Cowburn, Executors of the late Mrs. Anne, Park-place, York-street, Cheetham, Manchester	...	1 1 0
	Cowland, John, Esq., Jun., 17, Woburn-place	1 1 0	
1	Cox, Mr., 27, High-street, Bloomsbury	...	1 1 0
1	Craker, Mrs. Ann, 194, Oxford-street	...	1 1 0
1	Crisp, Mr. James, 12, Kingsland-road	...	1 1 0
1	Cundall, Mr. T., 54, Bermondsey-street	...	1 1 0
4	Curtis, Mr. Charles Edwin, 93, Long Acre	...	4 4 0
2	Dalton, Barton, and Co., Messrs. (Limited), 16 and 17, King Edward-street, and 13, 14, and 15, Bull-and-Mouth-street, E.C.	...	2 2 0
1	Davies, Mr. Thomas, Northampton	...	1 1 0
1	Davis, Mr. Edward Thomas, 75, Caversham-road, N.W.	..	1 1 0
1	Davis, Mr. Edward, 14, Long Acre	...	1 1 0
1	Davis, Mr. James, 14, High-road, Knightsbridge	...	1 1 0
1	Davis, Mr., 7, Hart-street, Grosvenor-square	...	1 1 0
1	Deane and Son, Messrs. Charles, St. Mary's-square, Bedford	...	1 1 0
2	Denton, Mr. C. J., 8, New Broad-street	...	2 2 0
1	Dixon, Sons, and Taylor, Messrs. John, Manning-street, Bermondsey	...	1 1 0
1	Double, Mr. John, 30, Castle-street, Long Acre	...	1 1 0
2	Draper, Mr. Charles S., 14, Charles-street, Soho, W. ...	...	2 2 0
1	Durham, Mr. Richard, 269, Oxford-street	...	1 1 0
1	Dyball, Mr. Charles, 3, Cornwall-road, Lambeth	...	1 1 0
1	Dyott, Colonel, M.P,, Freeford Hall, Lichfield	...	1 1 0
1	East and Co., Messrs. Joshua, 7, Curzon-street, May-fair	...	1 1 0
5	Edwards, Son, and Chamberlayne, Messrs., 21, Newman-street...	...	5 5 0
	Elam, Messrs. T. and J., 33, Sackville-street	...	2 2 0
	Ellis, Mr. R. F., 23, South-street, Manchester-square ...	...	1 1 0
2	Essex and Sons, Messrs. W., 28, Stanhope-street, Drury-lane	...	2 2 0
1	Evans, Mr. James, 46, Seel-street, Liverpool	...	1 1 0
1	Fairbridge, Mr., 2, Grove-place, Alpha-road	...	1 1 0
2	Felton, Messrs. J. W. and C., Halkin-street-west, Belgrave-square	...	2 2 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
	Findlater, The late Mr. W., 48, Broad-street, Birmingham	...	2 2 0
2	Fitzgerald, Mr., Hampstead	...	2 2 0
2	Fuller and Co., Messrs. J., St. George's-road, Bristol ...	...	1 1 0
2	Fuller, Messrs. S. and A., Kingsmead-street, Bath... ...	...	2 2 0
1	Gadsby, John, Esq., Town Clerk, Derby	...	1 1 0
1	Gadsdon, Messrs. C. and B., 11, Brushfield-street, E. ...	...	1 1 0
	Garnier, The late Mr. F. R., Ross, Herefordshire	...	1 1 0
1	George and Co., Messrs., 102, Dean-street, Soho	...	1 1 0
1	Gibbings, Mr. William, Bear-street, Barnstaple	...	1 1 0
1	Gibson, Mr. Thomas, Highfield, Cape Hill, Birmingham	...	1 1 0
1	Gingell and Son, Messrs. James, Kent and Essex-yard, Whitechapel High-street...	...	1 1 0
2	Glover, Mr. James Thomas, East-gate, Warwick	...	2 2 0
1	Gordon, Mr. Thos. Graham, 53, Park-street, Grosvenor-square	...	1 1 0
1	Gorringe and Co., Messrs. R., Brewery-road, Islington...	...	1 1 0
	Greatorex and Son, Messrs., Walsall	...	1 1 0
1	Grice and Harrison, Messrs., Sherbourne-street, Birmingham	...	1 1 0
2	Griffiths, Mr. George, 5, Charles-place, Westbourne-terrace	...	2 2 0
1	Hailes, Mr. George, 17, Promenade, Robin Hood-street, Nottingham	...	1 1 0
1	Hall, Mr. Charles A., 13, Arklow-square, Ramsgate ...	...	1 1 0
2	Hall and Sons, Messrs., 97 and 98, Long Acre	...	2 2 0
	Hall, Mr. Thomas, Ashbourne, Derbyshire	...	1 1 0
I	Hallmarke, Mr. John, 10, Harwood-road, Walham-green, S.W....	...	1 1 0
1	Hanes, Mr. John, 108, Alexandra-road, N.W.	...	1 1 0
2	Harrington, The Earl of, Harrington House, Craig's-court, Charing-cross	...	2 2 0
1	Harris, Mr. W. C., 4, Portland-road, Leamington Spa...	...	1 1 0
1	Harrison and Son, Messrs., R., 1, Stanhope-street, Euston-road	...	1 1 0
1	Hawkins, Mr., New-street, West Bromwich	...	1 1 0
1	Hayman and Co., Messrs., 100, Sidwell-street, Exeter ...	...	1 1 0
2	Heffer, Messrs. Henry and Co., 101, Long Acre	...	2 2 0
1	Hewitt, Mr. William, Northgate-street, Chester	...	1 1 0
2	Hoadley, Mr. Alexander, care of Mrs. Grey, 1, Linden-grove, Peckham Rye, Surrey, S.W.	...	2 2 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
10	Holland, Messrs. William and John	...	10 10 0
	Holland, John, Esq.	1 1 0	
5	Holland, Mrs. E. D., 15, Vicarage-gardens, Campden-hill, Kensington	...	5 5 0
5	Holmes, Messrs. H. and A., Derby, Lichfield, and London	...	5 5 0
5	Hooper and Co., Messrs., 113, Victoria-street, Westminster, S.W.	...	5 5 0
2	Hooper, George, Esq., ditto ...	...	2 12 6
5	Hooper, George N., Esq., ditto ...	1 1 0	5 5 0
	Hooper, William, Esq., ditto ...	1 1 0	
1	Hopper, Mr. William, 11, Great Queeen-street	...	1 1 0
	Howes and Burley, Messrs., 264, Bishop-street, Birmingham	...	1 1 0
	Howett, Mrs., Denmark-place, Drury-lane	...	1 1 0
1	Hughes, Mrs. Lydia, Kingston-on-Thames	...	1 1 0
2	Hughes, Mrs. W., 89, Alexandra-road, St. John's-wood	...	2 2 0
1	Hunnybun and Son, Messrs. Thomas, Sidney-street, Cambridge	...	1 1 0
1	Hunt and Sons, Messrs. William, Brade's Steel Works, Birmingham	...	1 1 0
2	Hunter, Mr. James Ker, Bromley, Kent	...	2 2 0
2	Hutton and Sons, Messrs. John, Summerhill, Dublin ...	...	2 2 0
2	Hyde, Archer, and Co., Messrs., 9, Paternoster-buildings, Newgate-street...	...	2 2 0
5	Ivall and Large, Messrs., Victoria-street, Westminster, S.W.	...	5 5 0
	Jackson, Messrs. I. and W., Belgrave-gate, Leicester ...	...	1 1 0
1	Jackman, Mr. John, 138, Long Acre...	...	1 1 0
1	Johnson, Mr. Albert Russell, 101, Long Acre...	...	1 1 0
1	Johnson, Mr. J. W., Nelson-place, Cork...	...	1 1 0
2	Jolly and Son, Messrs. Norwich...	...	2 2 0
	Jones, Mr. D., 18, New Castle-street, Merthyr Tydvil ...	...	1 1 0
1	Jones, Mr. Thomas W., Horse Fair, Birmingham ...	1 1 0	1 1 0
1	Keen, Mrs. 41, North Audley-street	...	1 1 0
1	Keen, Mr. Edwin ditto	...	1 1 0
1	Keen, Mr. Charles, Farnham, Surrey	...	1 1 0
1	Keites and Sons, Messrs. Leicester	1 1 0	1 1 0
1	Kendall, Mr. T. F., 39, Margaret-street	...	1 1 0
2	Kesterton, Mr. Vicesimus, 121, Long Acre	...	2 2 0
2	Kinder, Mr. Henry, Granby-place, Leicester	...	2 2 0
1	Kirchner, Mr. M. A., 144, Clapham-road	...	1 1 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
1	Knight, Mr. Frank, 254, Oxford-street	...	1 1 0
1	Lambert, Mr. John, 66, Great Queen-street	...	1 1 0
1	Lambert, Mrs., ditto	...	1 1 0
	Laurie and Marner, Messrs. (Limited), 313, Oxford-street...	...	5 5 0
1	Laver, Mr. John, 72, Sutherland-gardens Paddington ..	...	1 1 0
1	Laver, Mr. James H., 93 and 94, Long Acre...	...	1 1 0
1	Lawson, Mr. Sydney, The Forge, Wainwright-street, Aston, Birmingham	...	1 1 0
	Lee, Mr. Frederick, 65A, Long Acre	...	2 2 0
1	Lee Brothers, Messrs., 27, Watling-street...	...	1 1 0
	Leslie, The late Mr. Lewis James, 45, Margaret-street, Cavendish-square	...	3 3 0
1	Lesty, Mr. George, 48, Wootton-street, Commercial-road, Lambeth...	. .	1 1 0
2	Lievesley, Mr. Richard, Wellington-road-north, Stockport	...	2 2 0
1	Lines, Mr. George, 116, Southwark Bridge-road	...	1 1 0
2	List and Son, Messrs. William, 51, Bunhill-row, E.C. ...	...	2 2 0
1	Lowe, Sleigh, Bevan, and Co., Messrs., Clarence Works, 34, Fordrough-road, Birmingham...	...	1 1 0
3	Lucas, Mr. F. W., Brixton-hill, S.W.	10 10 0	3 3 0
1	Lynex, Mr. Henry, St. Mary's-road, Walsall	..	1 1 0
	Lyon, Mr. John, 14, Hardman-street, Liverpool	...	1 1 0
2	MacKenzie, Mr. Alexander, Walnut Tree-walk, Lambeth, S.E....	...	2 2 0
2	McNaught and Smith, Messrs., Worcester	...	2 2 0
2	Mander Brothers, Messrs., 17, Gracechurch-street, and Wolverhampton	...	2 2 0
	Mann, Mr., 7, Anson-road, Tuffnell-park, N.	...	1 1 0
1	Mann and Co., Messrs., Aberdeen-walk, Scarborough ...	...	1 1 0
2	Marshall, Sanders, and Co., Messrs., Wharf-road, Aston, Birmingham	...	2 2 0
1	Martinelli, Mr. L., 57, Prince of Wales'-crescent, Camden-town	...	1 1 0
1	Maskell, Mr. James, 5, Springfield-lane, Chelmsford, Essex...	...	1 1 0
	Maskery and Co., Messrs., Warrington	...	1 1 0
1	Mason, Messrs., Deddington, Oxon	...	1 1 0
1	Mason, The Executors of the late Mr. W. H., Kingsland-road	...	3 3 0
1	Mason, Son, and Co., Messrs., Colour Works, Derby ...	..	1 1 0

Votes.		Donations. £ s. d.	Annual. £ s. d.
1	Matthews and Sons, Messrs., Spa-road, Bermondsey ...	...	1 1 0
2	Maule, Mr. W., and Maule and Sons, Messrs., Howick-street, Alnwick, and Berwick-on-Tweed	...	2 2 0
2	May and Co., Messrs. W., 13, Bread-street, Cheapside ...	...	2 2 0
2	May and Jacobs, Messrs., Guildford	...	2 2 0
1	Maythorn, Mr. John, High-street, Biggleswade	...	1 1 0
	Meredith and Co., Messrs. John, Lionel-street, Birmingham	...	2 2 0
1	Miller, Mr. W., 13, Cambridge-place, Paddington	...	1 1 0
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2	Turrill, and Sons, Messrs., 22, Long Acre	...	2 2 0
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2	Whittingham and Wilkin, Messrs. Thomas, 136, Long Acre	1 1 0	2 2 0
	Wildy, Mr. Charles, 30A, Charles-street, Drury-lane ...	...	1 1 0
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1	Woodnough, Mr. Cornelius, 2, Elizabeth-street, Eaton-square	...	1 1 0
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*** The Honorary Secretary will be obliged by being informed if there are any errors or omissions in these lists; or if any Governor or Subscriber has not a copy of the Rules, and a copy of the Report for the year ending 31st December, 1877, he will be happy to forward one.

FORM OF BEQUEST.

"I give and bequeath unto the Treasurer for the time being of a Benevolent Institution, called or known by the name of 'THE MASTER COACHBUILDERS' BENEVOLENT INSTITUTION,' the sum of to be paid out of such part of my personal estate as by the laws in force at my death may be bequeathed for charitable purposes, within months after my decease, to be applied to the benevolent uses and purposes of the said Institution, and for which the Treasurer's receipt shall be a sufficient discharge."

SURETISHIP:

THE DANGERS AND DEFECTS

OF

PRIVATE SECURITY,

AND THEIR REMEDIES.

BY

CHARLES SAUNDERSON,

Late an Auditor of the Guarantee Society.

" He that is surety for a stranger shall smart for it: and he that hateth suretiship is sure."—PROV. xi. 15,

" Have not the fairest estates been destroyed by suretiship?"—SOUTH.

(REPRINTED.)

SAUNDERSON ON SURETISHIP.

REMARKS BY THE PUBLIC PRESS.

"The dangers and defects attending on Private Security are ably treated in a pamphlet now before us. . . . We perfectly agree with Mr. Saunderson in his concluding remark."—*Morning Chronicle.*

"We have now before us a cleverly-written little pamphlet, entitled 'The Dangers and Defects of Private Security, and their Remedies.' . . . . A Society was established by the Act of Parliament the 5th Victoria 1842, entitled 'An Act for regulating Legal Proceedings by or against the Guarantee Society, and for granting certain powers thereto.' . . . . It is, in fact, an Institution which cannot fail to become extensively useful and eminently successful."—*The Atlas.*

"The circulation of this pamphlet will no doubt greatly extend the growing conviction of the importance of a better system of Suretiship. The public are greatly indebted to Mr. Saunderson for his exertions, and we recommend his pamphlet to the attention of our readers."—*Railway Journal.*

"A small pamphlet on the dangers of Suretiship is now before us. . . . . The community are indebted to the author for the concise manner in which he points out the defects and recommends a remedy."—*Mining Journal.*

"It is on this subject that Mr. Saunderson has written the short treatise before us, which does great credit to the zeal of that gentleman."—*Polytechnic Review.*

"Our attention has been given to a pamphlet on 'Suretiship.' . . . . Considerations have led us to think that a Company established like the Guarantee Society for insuring integrity. . . .

must be a boon of very considerable importance to a large and meritorious class of the community, and one which deserves the support and countenance of the public at large."—*Kelso Chronicle.*

"The Guarantee Society is a Joint-Stock Company, established for the purpose of providing Sureties for the *fidelity* of persons in situations of trust. The author of the Essay before us was for some time Auditor of the Society. . . . . We think nothing can be added to the clear and able statement he has drawn up. We have pleasure in recommending it to those who are engaged in Banking Establishments."—*Bankers' Magazine.*

". . . . . In all situations of trust the Guarantee Society is eminently applicable; while to those who wish to examine this subject more minutely, we would recommend a perusal of a clever little work entitled 'The Dangers and Defects of Private Security, and their Remedies,' by Charles Saunderson."—*Glasgow Argus.*

"From a small pamphlet by Charles Saunderson, late an Auditor of the Guarantee Society, we extract as follows, &c. . . . . We shall not fail to avail ourselves of the advantages which the Society offers, and we can have no hesitation in advising others to go and do likewise."—*North British Advertiser.*

"The unpleasant nature of the obligation called Suretiship is universally felt and acknowledged. . . . . The intellectual progress of our country has at length furnished a solution of this class of difficulties. . . . . To quote a pamphlet upon the subject ['Suretiship, by Charles Saunderson'], &c. . . . . We are, upon the whole, impressed with a strong sense of the soundness of the principle involved in the establishment of the Guarantee Society."—*Chambers's Edinburgh Journal.*

"This very able pamphlet treats of a subject in which the public generally are much interested. . . . . We warmly recommend the subject to the consideration of our readers."—*Irish Railway Gazette.*

SURETISHIP.

AN Act was passed in the session of Parliament for 1842, which makes an important change in the mode by which Security may be given to the Crown for the integrity of officers appointed to places of pecuniary trust, and which promises to effect so great an improvement upon the practice hitherto established, that it appears desirable to consider whether the principle on which this change is founded cannot be extended to Private Suretiship generally. An improvement calculated to prevent the great inconvenience experienced from the present system by the man of business, and the injury so often inflicted on the Surety, deserves public attention; and having a strong conviction of the mischief frequently resulting from the ordinary arrangements by which Sureties are provided, I shall attempt to describe the dangers and defects thereof, and the remedy thus provided by the law.

The Act alluded to recognizes a Society instituted for the purpose of giving Security for the fidelity of persons appointed to offices of trust, and is entitled "An Act for regulating Legal Proceedings by or against the Guarantee Society, and for granting certain powers thereto (Royal Assent 18th June, 1842)." The main object of the Act was to authorize the reception of the Security of the Guarantee Society for officers of the Crown in appontments to Her

Majesty's Service,[1] which had hitherto been protected under special enactments.

If the proceedings of such a Society be founded upon correct data, it is evident the principle is applicable to other occupations which require the appointment of persons to duties of trust. I have therefore availed myself of the opportunities afforded to me, and have made minute inquiries into the proceedings of the Guarantee Society. The facts contained in this pamphlet are the result of those inquiries, and of a careful examination of the documents in its office, whilst I acted as an auditor of its accounts.

To proceed at once to the objects of the Guarantee Society: Upon the appointment of an individual to any office or duty involving pecuniary trust, or upon the death of a Surety, provided the applicant be found a person of moral worth, the Society is willing to incur the risk of becoming his bondsmen; the individual contributing to the funds of the Society a percentage proportionate to the amount named in the Surety bond. This percentage, however, is not calculated upon the degree of honesty he may be supposed to possess: if his reputation for strict integrity and morality present any blemish, he is rejected altogether. Independently of the personal character of the individual, the Society is also guided by the nature of the engagement, the Salary to be paid to him, and the description of employment or business in which the bond of Suretiship is required,—the characters of the referees and their connection with the party,—the check under which the person will be placed, and the evidence the Society may obtain, that his conduct under these frequent and periodical checks will be observed by a wise and vigilant

[1] Personal interviews were had on behalf of the Guarantee Society with the Chancellors of the Exchequer, the Right Hon. Henry Goulburn, and the Right Hon. F. T. Baring, at which the objects of the Act were officially approved.

superior, and not abandoned to the common influences by which he may be surrounded. If the employer should be generally known to be a person who does not exercise a strict supervision over the persons he employs, the Society declines to afford protection against the consequences to be expected from the defective arrangements of such an establishment; so that the character of the individual seeking Guarantee is but one of many circumstances which would affect its decision. A second main principle adopted, is to treat losses by Suretiship as an ordinary risk, and to protect the funds of the Society on the principles applicable to insurance, in which the individual who wishes to protect himself or others from any particular risk for which insurance exists, pays a contribution into a general fund, smaller or greater in amount as the danger of loss increases or diminishes, and upon the occurrence of the casualty against which he provides, reimbursement is made from the general fund thus created.

Heretofore Suretiship for the faithful discharge of pecuniary trust has been a private arrangement between the principal, the agent or person employed, and the Sureties. The friends of some unemployed relative, dependant, or friend, are desirous that he should engage in business, and the principal of the concern (satisfied with his respectability) is willing to appoint him to an office of trust, provided the "firm" be Guaranteed from loss by a bond, in which certain persons of known or supposed property undertake to make good any loss from fraud or dishonesty on the part of the individual to be employed. The person for whom the employment is sought then solicits his friends to grant him this favour, and having obtained Sureties, commences the discharge of the duties assigned to him. Similar arrangements take place in appointments to various Public Offices and Employments.

On reflection, it will be discovered that this system is open

to serious objection: that it provides frequently a nominal instead of a real Security, involving the interest of all, but affording adequate protection to none: and, while it imposes no check upon the vicious, it often exposes the innocent to difficulty, and may raise an insuperable bar to the adequate reward of many useful members of society.

The insecurity of Private Suretiship to the principal, arises from the difficulty of ascertaining the solvency of the persons offered as Sureties, and the continuance of their solvency after the acceptance of the Bond. The means of the Sureties, like those of all other individuals, may become impaired without any creditor being aware of the fact, and a knowledge of such misfortunes may be concealed from their most intimate friends; at the same time, various causes (if any real danger of default exist) may gradually weaken the good principles of the youth for whom the Security was provided, or the necessities of a family subject the honesty of the man of more matured age to a greater trial than his virtue can withstand. If default take place, the principal has recourse to his bond; but this, under such circumstances, proves a very inefficient protection; the Sureties are found poor instead of wealthy; a compromise is effected: a wrong, necessary perhaps under present arrangements, is inflicted upon one or two individuals; while sometimes, from the inability[1] of the Sureties to pay, a total loss is entailed upon the principal, notwithstanding his possession of a bond that ought to have afforded protection under such an occurrence.

The Guarantee Society provides the means of escape from these dangers. Its large capital is a solid proof of its

[1] A case, illustrative of this insecurity, has very lately occurred. A clerk of thirty-three years' service proved dishonest: the employers immediately thought of their bond. The instrument had never before been referred to. It was then discovered that the sureties were dead, and no clue could be obtained to their personal representatives.

solvency[1]; its revenue, from annually recurring premiums, affords additional resources for the payment of sums due upon defalcations; and the inconvenience to principals of tracing changes of residence, and personal representatives of deceased Sureties, is altogether avoided.

There is also much in the proceedings of the Guarantee Society which diminishes the risk of Suretiship to all the persons concerned.

In the discharge of trusts between parties united by daily intercourse, there is a natural repugnance to allude to a Deed which proceeds on the assumption of dishonesty in a friend. The instrument, therefore, loses much of its controlling power, and is less likely to prevent fraud, than if the existence of the bond could be periodically impressed upon the minds of all parties.

The annual notice which the Society issues supplies this defect; it reminds the one that, holding the security of a bond, it is his duty to examine and balance periodically the accounts of the party guaranteed; and to the other, it recalls the remembrance of the obligation, under which he is bound to a faithful discharge of the trust he has to perform. It imposes no burthen upon the principal, unless an ordinary attention to his own interests can be so regarded; and it requires from the servant nothing more than strict integrity of conduct. Not only, therefore, is a more complete security provided for the principal, but the Society encourages the growth of a high moral feeling in one of the most useful classes of the commu-

[1] The Deed of Settlement declares that the profits of the Society shall be added to its paid-up capital; and the Shareholders are limited to a dividend which must not exceed in any one year 5 per centum, and which is limited to Interest on invested Capital. Claims on the funds of the Society for default, notwithstanding the short period the Society has been established, and the narrow sphere in which the Directors have considered it prudent to limit their operations, have been made in many hundred cases. What an extent of loss, of which the community can have no knowledge, must therefore annually occur under the sytem of Private Suretiship!

nity—those entrusted with pecuniary transactions on account of others. So convinced have many principals of well-established firms become of the value of the position taken by the Guarantee Society, that they, instead of the individual, pay the amount of premium required by the Society from the person who is the object of the Guarantee.

By the institution of this Society, the only cases in which Private Suretiship need hereafter be required, are those in which the Directors decline the duty of bondsmen. Their interest is evidently to grant Security; and consequently, in case of refusal, there must be some counteracting cause which makes the Society consider it imprudent to comply with the application. The attention of its managers and officers being devoted to the consideration of the obligations that Suretiship entails, it is enabled to exercise a sound discretion, and to avoid risks which are often incurred from inexperience of their serious consequences, or which are somewhat recklessly assumed from private feelings. The individual to be employed may be a man of the highest integrity, the employer may be unobjectionable; but the information before the Society may shew that the risk is great, that no efficient checks exist to control[1] the individual, that the employment is one of constant temptation, or that the salary is inadequate to the duties required, and the respon-

[1] The public can have no conception to what an extent, in cases of local taxation, such as the Poor Rates and the Assessed Taxes, heavy defalcations occur, the audit or other check upon the collector being generally altogether inefficient. The duty of collecting is entrusted to persons engaged in retail trades, to whom capital is of importance: a sum may be misappropriated with what the collector may consider no positive intention of dishonesty; but untoward events may prevent him replacing the money at the proper time, and he immediately falls into embarrassed circumstances. The receipt of money, on this account, cannot with prudence be entrusted to persons engaged in trade. The efficiency of the audit, in cases of this description, would be greatly increased by a more prompt collection of the arrears of every Rate by another officer, by which any misappropriation of money would be quickly discovered. Another efficient check, which could be generally adopted

sibility that the individual must incur. The refusal of the Society is therefore no necessary impeachment of the honesty of the person; but it is a beacon marking some cause of insecurity otherwise unobserved, and warning the unwary from the consequences of such a Suretiship. The caution with which the Board of Directors act must produce confidence in their proceedings, and will enable them to overcome the difficulties with which the Society[1] has to contend.

Individuals who are under bond in the character of Sureties are exposed to serious evils; they are liable to pecuniary mulcts at every moment for dishonesty over which they have no control; they are incapable, under the present law, of obtaining release from obligations to which they are declared bound for ever, as the bond once given cannot be withdrawn without the express consent of the employer; they are at the mercy of the employer and of the employed! Take the youth just launched upon the world—who is to guarantee his

at a very trifling expense, would be a printed circular to the Rate or Tax-payers in default, informing them that they had been returned as defaulters. The office should also be rendered acceptable to a more trustworthy class of individuals, by a higher per-centage with a maximum limit of recompense, or fixed salary.

Certain trades and professions also abound with temptation, and although the persons engaged therein receive liberal pay, the losses in such trades from dishonesty and fraud are more than proportionately high. The want of communication, either personal or written, between the principal and his customer, and the vicious principle of not paying over Balances between Master and Servant, at the time of periodical accounting, are fearful sources of fraud.

Since the publication of these remarks, the Poor-Law Commissioners have, to a considerable extent, adopted the suggestions of the writer as to the proper class of persons to collect the Rates; but with reference to Savings' Banks, the late serious defalcations in Ireland, and others in England, show that no improvements have been introduced to abate the injury that is thus inflicted on the poor. Every Savings' Bank ought to have a Manager or Cashier to receive and pay, and an Accountant to keep the Books; thus checking each other: and no Manager or Officer should be allowed to act as Agent for any Depositor.

[1] The development of a principle has frequently great difficulties to contend against. Great delay attended the formation of the first Mutual Life Assurance Company. Similar objections retarded the commencement of business by the Guarantee Society until 1840.

fidelity and honesty? How often is the parent or guardian obliged to become his surety? If default occur, those who have nourished, educated, and befriended, or the sister and brother who have looked up to their relative for credit and support, are involved in the common ruin; and the punishment falls more heavily upon the Sureties[1] than upon the delinquent.

Take again the position of Sureties with reference to the employer. The fraud charged may be imaginary; default may have arisen from circumstances never contemplated under the bond[2]; but the Sureties are in no better situation on that account; they have laid themselves under personal obligations and liabilities. In most cases they are unacquainted with the complexity of commercial accounts; they become the victims of their want of foresight, ignorance of points of law, or of their imperfect knowledge of the special circumstances attendant on the trade or occupation in which their liability has arisen. Is the risk joint? The solvent Surety is still unprotected; his Joint Sureties may be unable to meet their portion of the risk, and the whole burden falls upon the one Surety who can pay.

If we take higher walks in life, we find other serious drawbacks and obligations upon the Surety. If a person obtain an appointment in any of the Government departments of revenue, Sureties become necessary; but as any claim of the Crown affects both real and personal property, the whole estate of the Surety is immediately encumbered, and be-

[1] A detail of the distress produced by such occurrences would furnish a strong appeal to the feelings of every honourable mind; the earnings of a life of industry in an instant lost, and the innocent Surety thrown, often in old age, destitute upon the world.

[2] Covenants, such as few lawyers, if consulted, would allow their client to sign, are frequently insisted upon in these bonds. The consequence of negligence, which may arise from the inefficiency of the arrangements, is often imposed on the Surety, instead of the principal or the officers appointed to manage and direct.

comes proportionally depressed in value, being exposed to all the serious consequences of "extents in aid" on behalf of the Crown Such a bond creates a difficulty in dealing with real property by sale or mortgage[1]; and although the circumstances may have ceased under which the bond was granted, considerable inconvenience and expense must be incurred before the registration of the bond can be formally and legally cancelled.

To the person who is required to find Security, and whose character will bear the test of inquiry, the advantages offered by the Guarantee Society are great; they relieve him from the personal obligation that accompanies private Suretiship —he is enabled to enter upon the duties of his office free and untrammelled—he is placed above the contingencies arising from the death, insolvency, or voidance of his Sureties by residence abroad—and he knows that when the necessity for the guarantee is determined, his obligations to the Society cease. Encouragement to a continuance in a course of fidelity is also obtained from the knowledge that when a reputation for integrity has been established with the Society, additional Security may be obtained when required—as on promotion, or a change of employment.

The favour of private Suretiship is generally solicited under the painful feeling that the friend or relative is to lay himself under serious pecuniary liabilities for no consideration whatever. In country towns—nay, even in Government

[1] This was found so serious an evil, that an Act of Parliament was passed a few years since to permit the revenue officers to deposit a sum equivalent to the amount of the security required; which, although a palliative, meets the case of a very few of the officers, to whom such deposit would, in the generality of cases, be useful for the education of a family, or other purposes. The Directors have been in correspondence with the Lords of the Treasury on the subject of Suretiship, for officers in the revenue departments, and had conceded every point that the advisers of the Crown required, excepting one, which their duty to their constituents obliged the Directors to decline to accede to. This difficulty has been now removed.

offices[1]—it may involve other painful sacrifices; favours are frequently required in return, which are in opposition to the strict line of duty which the individual ought to observe. To the thoughtless, the question may be a matter of perfect indifference. These ask the favour as they would an ordinary question; and if surrounded by persons as inexperienced as themselves, the request is readily complied with. But to the sensitive mind, the dread of a refusal must be a subject of painful apprehension; and however successful the progress of the individual may have been, although he may have outstripped the pecuniary circumstances of those who have known and esteemed him in early life, he may find in the sequel that he has become more dependent than ever upon strangers. Each advance may have successively increased the amount of the required Sureties, and the death of one Surety,[1] may oblige him to resign at once an appointment which his whole life had been devoted to attain.

In the discharge of offices which require the attention of men of extensive experience and of good standing in society,

[1] The Commissioners reporting in 1843 upon the Customs' frauds briefly alluded to two subjects, as they state, of minor importance, but involving considerations not to be overlooked. Of these, the most important related to the bonds entered into by the Customs' officer at the time of his entering the service of the revenue. A landing-waiter, on his appointment, is required to give Security by a bond of £500, with two Sureties of the like amount, for his general good behaviour. In no instance, since 1834, had the insufficiency of any Surety in the port of London been reported to the Board of Customs, although the landing-waiters are liable to forfeit their situations if they do not report the death or bankruptcy of any of their Sureties, and renew the Security within a certain limited time. "Yet nothing," says the Report, "can be more loose or unsatisfactory than the way in which this annual inquiry has been made in the port of London. The evidence, indeed, shows that it has been entirely useless. In proof of this, we need only state to your lordships, that of Mr. ———'s two Securities: one of them was prosecuted and convicted of a serious fraud upon the revenue, and was taken to Whitecross Street Prison, 28th December, 1840, at the suit of the Customs. Nevertheless, no notice was taken of his being one of Mr. ———'s Securities." How much more perfect would have been the Suretiship of such a body as the Guarantee Society!

the inconvenience of the system of Private Suretiship becomes still more injurious: to exemplify this point, the three following stations must be instanced, in which important duties of a public character are required:—1st. Receivers of property under the Court of Chancery; 2nd. Official Assignees in the Courts of Bankruptcy; 3rd. Distributors of Stamps under the Board of Stamps and Taxes, the last involving a serious responsibility[2].

With respect to Receivers in Chancery, whose duty it is to collect moneys due from trust properties, estates of infants and lunatics, dissolution of partnerships, mortgages, and interests of every description in course of litigation before that branch of the administrative jurisdiction of the country, which amount annually to some millions of pounds sterling; there is a necessity under the orders of the Court, that each receiver, upon appointment, should give Security to double

[1] The highest commercial appointments are now held under the Suretiship of the Guarantee Society; and various letters are in its possession from individuals, who declare that their success in life has arisen from the support received from the Society. The following is a copy of a letter, taken from many others, upon this subject:—

SIR,—*I beg to inform you that I have left Messrs.* ——— *to take the situation of one of the* ——— *at* ———, *nearly doubling my income. I shall therefore not require the Security any longer.*

Through you, Sir, I beg to thank the Board for having formed a Society that was so very much required; for had not the "Guarantee" been in existence, I have not a friend that I could or would have asked to have been Security for me. It is indeed the poor man's friend. Through you I have been enabled to insure my life, through you I now increase it to £1,000, raising me from an income of £120, to enjoy an income of £400.

Apologizing for intruding thus on your business hours, believe me to remain, Sir,
Long Acre, Oct. 21, 1848. *Yours very gratefully,*

———

To the Secretary of the Guarantee Society, Birchin Lane.

[2] This is a risk that private individuals ought carefully to shun, as well as those for all Parochial Rates; the Boards of Guardians generally, unwisely and improperly, neglecting the audit of the monthly returns that should be made to them by officers who have to receive or disburse money on account of Parishes or Unions.

the amount of the sum entrusted to his care for collection. As these officers are remunerated by a per-centage upon the gross amount they collect, when the suit or cause involves a large property, the appointment becomes valuable, and the Bond required may amount to the sum of £30,000 or £40,000, or more. The difficulty of obtaining such an amount of Surety must be great to any individual; and many persons, however qualified, would have to decline the office, and to this extent the efficiency of the Court receives an injury.

The duties assigned to official Assignees in the Courts of Bankruptcy render a judicious selection from well-qualified candidates of vital importance. The careful investigation of accounts, embracing mercantile transactions of great magnitude; the duty of exposing attempted imposition, by fraudulent debits and fictitious credits; the collection of assets, and the payment of dividends, are important duties, and fall especially within the province of the man of general mercantile knowledge. The appointment, therefore, is peculiarly open to the merchant or general trader, who by the vicissitudes of commerce, or by some wrong calculation of results, has found himself obliged to retire from business on his own account, but whose character remains unblemished, and who continues to enjoy the good opinion and friendship of his former associates. Yet before this person can enter upon such an office, it is necessary the estates entrusted to his care should be protected by a bond for many thousand pounds. The present system affords no other resource in such a case than the private friendship of probably the banker, the solicitor, or some trader, who has benefited by transactions with the candidate at a former period. But these are persons whose engagements constantly require them to be before the very Court of which the candidate is to be appointed an important

functionary; and to that extent, he will enter upon the duties of the office under restraints which he ought not to know.

The office of Distributor of Stamps involves an attention to important fiscal arrangements with reference to the public revenue. This appointment imposes the necessity of finding Bondsmen to the extent of £10,000 upon an average[1]; an amount of Security that even the most respectable individual must occasionally find it difficult to obtain.

To the meritorious, therefore, the object for which the Guarantee Society has been established affords assistance and encouragement; in operation it may do more, it may be a positive protection to him. Suspicion may arise in the mind of the principal that he has sustained pecuniary injury, alarm may follow thereupon, and personal feelings arise between the parties: a claim may be made for an asserted default, and the balance-sheet, upon a *primâ facie* view, establish the accusation; but the Society examines and investigates the claim. It can thus check unjust charges; it makes principals aware that proper control must be maintained in dealings with those who are accountable to them; and it assures the employed that, if they be wrongfully accused, the claim will undergo an impartial scrutiny. This result Private Suretiship can seldom accomplish. The claim is sometimes disputed, sometimes compromised, and sometimes paid in full; warm personal feelings are often excited; friendship and ties of relationship are broken; the one party declaring he has been wrongfully injured in character, and the other that he has been shamefully cheated and deceived.

It would be an erroneous notion to suppose that such an Institution is likely to open the road to responsible offices to

[1] The Security required of the Distributors of Stamps varies according to the district in which they may be appointed. The Distributor at Liverpool gives Bond for £30,000, while from the officer at Yarmouth not more than £6,000 is required.

he has incurred a heavy penalty; and it would evince great ignorance of the world to suppose relatives would further expose their family honour by public proceedings against the offender. Under such feelings, the worthless servant escapes punishment; he may form other acquaintance; he possibly may obtain another employer, and other Sureties, and run a similar round of folly and vice, and eventually plunge into greater delinquencies. The proceedings of the Guarantee Society, on the contrary, are well calculated to arrest such a course of events. Upon the first defalcation, if it be not a case of gross fraud, the individual may be called upon to protect the Society from pecuniary loss, his employer still having the right to prosecute. If this can be accomplished, when a second application for Guarantee is made, the answer of the Society would be, "We will not guarantee A. B. a second time: we believe he can be employed more usefully than in offices of pecuniary trust."

The individual is by such means probably saved from the temptation that would constantly beset him. If the circumstances attending the defalcation afford evidence of serious criminality, prosecution will certainly follow. The Society have their personal interests to protect, and in such a case must exert the only real check upon the positively dishonest, viz., the certainty of exposure and punishment.

The success of the Guarantee Society must therefore lead to a diminution of fraud and dishonesty.[1] In further proof, it may be stated that of parties whose default the Society has made good, some have undergone the penalty awarded by the law as a punishment for dishonesty, while other delinquents, who had absconded to avoid the consequences

[1] The sum already paid by the Society, notwithstanding all its care and caution, exceeds £400,000.

The experience, therefore, of the Society has shown to the Directors that fraud by Servants, under Private Sureties, is committed to a serious extent in

of a prosecution, have been punished in America ; while some, under judicious advice and assistance, have become useful members of society.

To the legislator, the Guarantee Society will, in course of time, be able to communicate valuable information upon a branch of criminal jurisprudence that has hitherto eluded observation. To the moral philosopher, it will afford important facts for the closer examination of the principles that actuate a large section of the community ; it will test to what extent moral depravity may exist in that branch of the community to which the Society devotes its attention, which has hitherto remained unexplored ; it will mark the course through which a portion of the deleterious mixture of dishonesty flows that impregnates social life with its baneful influence ; and to the man of property, to the man of business, it may be able to point out, from time to time, defects of arrangement[1] which expose him to the plunder of the designing ; and thus, by lessening the opportunity, will cause the avoidance of circumstances that must give the greatest pain to every honourable mind.

Besides the interests already enumerated, others have been necessarily left unnoticed. Among these are vast interests in the High Court of Judicature, Government

the commercial world. Cases daily arise to prove how totally inadequate and defective the system of Private Security is as a preventive of crime. With the exception of the Association of certain of the Bankers, and one or two other prosecuting Associations, the punishment for such crimes falls upon the Surety, who is altogether unprotected.

It is a lamentable fact, that scarcely any foresight can effectually guard against the designs of a dishonest servant : confidence must be reposed somewhere, and employers ever remain EXPOSED to loss. The Will-forgeries, a recent robbery at the Bank of England, and others in various offices, show the inefficiency of the strictest checks, where the servant is a man of talent, but deficient in principles of morality.

[1] See "Suggestions respectfully submitted to Employers, founded upon the experience of the Guarantee Society," at the end of this pamphlet.

Departments for the receipt of revenue, the Customs, Inland Revenue, the Post Office, the Mint; those for disbursements on account of public service, such as the Treasury, Ordnance, War Office, and the Admiralty; municipal trusts, incorporate bodies, and joint stock companies of great wealth and magnitude; and agencies in connexion with real property and estates: but when to these we add the hospitals, infirmaries, charities, and places of refuge for the destitute, the deaf, dumb, blind, and almost every other ill that can affect the human frame or damage property, deriving their support from large invested capital or voluntary contributions, and equally dependent upon the due receipt of the smallest annual subscription as on the larger bequests and donations of the wealthy; and when we consider that the duty of collection, receipt, and payment must be committed to persons limited as to their own pecuniary circumstances, the importance of Suretiship will become more apparent. The contemplation of such a position of society, of the moral obligations it imposes at every step, suggests serious reflection; and the only conclusion that can be arrived at is, that if Suretiship be one of the links by which advantages are secured to the community, it behoves society, if possible, to improve and strengthen it.

It may appear extraordinary that the public attention should not have been directed to the insufficiency of the arrangements for Security by Private Suretiship at an earlier period.[1] The system had, however, answered to a certain extent; it had afforded an apparent protection in all cases,

[1] The system of becoming Surety for a pecuniary consideration has been long prevalent in Asia. A gentleman, on the establishment of the Bank of England, suggested the application of the principles of Insurance to Private Suretiship in Great Britain; and its development by the formation of the Guarantee Society was accomplished by the late George Palmer, Esq., of the London Stock Exchange. As a preliminary, various facts and statements were submitted to gentlemen of authority upon questions of Insurance; among others, to Augustus De Morgan, Esq., a well-known writer on this class of subjects, who subsequently

in some a real one; and it has been naturally concluded that it was more safe to retain the system, with all its imperfection,[1] than hazard a change. Those, therefore, who have perceived its imperfections have considered it prudent to observe silence; and those whose interest it would have been to promote a more valid security, ignorant of the remedy to propose, have refrained from alluding to the evils it inflicted.

On a careful review of the various considerations in connexion with this important subject, it appears to me that the extension of Insurance to Suretiship is a legitimate object: and if the defects of Private Suretiship can be remedied by the success that may attend the working of this Society, never was there an institution that more deserved the support of *the public*.[2] If the facts and statements now submitted for consideration cannot be invalidated, the Guarantee Society must strengthen a system indispensable for the protection of social life, but which has hitherto been very inefficiently conducted by Private instead of Public Suretiship.

explained the practicability of such an arrangement, in a paper published in the "Dublin Review" for August, 1840. The introduction, therefore, of a Public Guarantee for fidelity in situations of trust originated with the two first-mentioned gentlemen alone, and no other person or actuary whomsoever. The widow of the gentleman first alluded to receives a liberal annuity from the Guarantee Society, which has thus the merit of being the Original Society, remunerating, from its own funds alone, the relict of the individual whose suggestion led to the introduction of the principle.

[1] The perils of Suretiship are so well known, that, in deeds of partnership covenants are frequently introduced, prohibiting a partner from being a Surety, unless the formal sanction of the partnership be first obtained.

[2] *The Directors, in addition to their own inquiries, place great dependence upon the known character of the employer, and the importance to principals that the persons they employ should be individuals of respectability, independently of the necessity of finding securities.*

SUGGESTIONS

RESPECTFULLY SUBMITTED TO

EMPLOYERS,

FOUNDED UPON THE EXPERIENCE OF

THE GUARANTEE SOCIETY,

No. 19, BIRCHIN LANE, LONDON.

CORPORATIONS, PUBLIC COMPANIES, PARISHES, and large Establishments, to make payments by Warrants or cheques, to be crossed, if only in blank, when above £5 or £10. Banking accounts are so common, that any tradesman will cash a cheque.

A separate cheque to be made in favour of every person to whom any money is due, and to be only drawn when the payment is to be actually made.

To prevent the cheque being broken, by which the tradesman or other person may be improperly put off with only a sum on account, let it be the duty of another clerk or department to send a printed notice to the party, informing him that a cheque has been signed for £————, which he may receive any day on and after the————.

Cheques should not be signed in blank, which is placing temptation in the path of a man who might otherwise continue honest.

Receipts of money should be regularly and constantly checked into a book, over which the collector or receiver has no control ; the receipt books in his possession being carefully and frequently compared with his return and the banker's Pass Book. This is too often postponed in the case of

collectors of rates and taxes, and the consequences are innumerable defaults. Overseers and Boards of Guardians are shamefully careless upon this point, and the ratepayers are the sufferers. When the collection is large, a bank account ought to be kept as that of the parish, or union, or revenue department, and not of the individual or collector. The system lately introduced by the Commissioners of the Metropolitan Sewers is a great improvement on the old plan: they deliver only 100 receipts to a collector at a time, and require him to account for them before he receives another parcel. The efficiency of the check would be also greatly increased by a *prompt* collection by another officer of sums returned in arrears. There is scarcely any part of England where the Society has not suffered as Surety for Collectors of Rates and Taxes. In large concerns, balances ought to be paid into the bankers daily; yet if the Pass Book be not carefully examined by a person who shall be held responsible, such any intruction will often be of *no avail.*

If the Secretary or Principal cannot draw each cheque with his own hand, it should be an invariable rule for the cashier or clerk to exhibit, at the close of the day's business, all the numbers in the Register Book against which cheques have been granted; and it would be a further safeguard, if each of these numbers, and the cheque counterfoil to which it refers, was at once marked by the Secretary or Principal with his initials. A regulation of this kind has the advantages of a *daily* supervision.

Whenever, from the nature of the employment, many cash payments, beyond the small disbursements of the petty cash cannot be avoided, a small book, called a "Till Book," may be used with advantage. This book may contain entries, in the most concise form, of sums paid and received. The balance of the two sides will always shew the cash actually

in the till ; and if the vouchers of the payments be examined daily, as they may be with great ease and expedition, a small record of this nature will be of material service as a check and corrective of the regular cash-book.

Wherever it is not possible to follow out the practice recommended in the two previous paragraphs, great care should be taken to examine the accounts and balance of the cashier, not on certain fixed periodical days, but at irregular times, of which the smallest possible notice should be given. The plea of notice required in such cases, so often set up, is quite inadmissible. If the vouchers be arranged every day, and the entries methodically made, a cashier can close his accounts in one hour as easily as in one week. It was under such a pretence that the writer once discovered a defalcation of many thousand pounds in the books of an important public company.

Bags containing coin, handed in as part of balance, ought to be opened and weighed, or counted. Bankers have been robbed by neglect of this precaution.

AGENCIES.

Let the agent be required to keep a separate cash account at a bank, as agent for the party he represents, whether for collection of Rents, an Insurance Company, Manufacture, or otherwise. If the party become a bankrupt, the account is the account of his principal, and will not pass with his estate. A gentleman of landed estates, or a large firm, can arrange with a local bank for remittances periodically. Other advantages will readily occur to a principal from the use of such an account.

When stock-in-trade is entrusted to an agent, the stock should be invariably taken by the principal, or a third party, at least every three or six months. No agent should accept

Bills for or on account of his employer, but all Bills to be drawn by the employer. Many principals shew a remissness as to stock-taking, to the great injury of the agent, exposing him to robbery, which such a practice would check by the early discovery of the deficiency at the period of stock-taking.

The balance shewn on a periodical account should be always handed to the principal, and never carried from account to account. If the employment involve a current expenditure, a cheque can be given or sent to the party on the same day as the cash balance is paid over.

BANKERS.

When the till of a cashier is examined, the whole of the coin, whether in parcels or loose, should be carefully counted or weighed, to detect any substitution of inferior coin. It is desirable an examination of each cashier's till should be made twice or thrice in the course of each half-year; that no previous notice should be given of them; and that the tills of all the cashiers, where more than one, should be examined on the same day.

All bags of bullion or coin in store should be occasionally counted or weighed. There should be a stringent rule against I O U's in any form, as value in counting up the contents of a cashier's till, either at the end of each day, or the time when it is examined.

If arrangements can be made for granting the cashiers and clerks a holiday of some days' duration during each year, by placing, during that holiday, the duties of the absentee in the hands of a clerk quite unconnected with him, a check of the most efficacious kind will be introduced.

The clerks to be cautioned against time bargains or other uncertain speculations.

RAILWAYS.

GOODS DEPARTMENT.—The losses on railways by the dishonesty of servants in the Goods Department have been considerable. By information kindly communicated by Mr. Davis, the Treasurer of the Eastern Counties Railway, a system has been adopted which confers the highest credit upon Mr. Davis, as it will rescue the young men acting on that Railway as station-clerks from the danger and temptation they were constantly exposed to. His principle has been that of a deposit account, or, if the account be large, say above £500 per annum, then a ledger credit account, all such accounts being kept at the head office. Thus, a carrier or manufacturer sending goods deposits the amount of his estimated monthly cost for carriage, say £20, with the railway. This should be done by remittance to the Head Office. The station-clerks are thereupon ordered to deliver goods to the carrier's order. An account of the charges upon the goods delivered each day is sent to the chief office, and forthwith posted to the credit of the deposit account; and a note is sent to the party daily, or weekly (if a ledger account, from the chief office), stating the amount with which he has been credited on account of deliveries from the different stations on the preceding day or week. The carrier is thus relieved of the necessity of sending money with his carmen, and the railway of a misappropriation of money by the station-clerk. The arrangement is so simple, that too much commendation cannot be bestowed upon the Eastern Counties Railway for its introduction. In consequence of this improvement, the average balance, on accounts for carriage of goods, which used to be £30,000, was reduced to £15,000. All disbursements are also prohibited at stations, and are made only at the chief office of that railway; but if urgent expenditure be required, the

clerk is instructed to immediately advise with the chief office by the next train, or the electric telegraph, and thus receipts and expenditure are brought within a manageable compass.

STATION CLERKS.—The fraudulent return of passenger-tickets on hand, or incorrect analysis of those issued daily, might be prevented at stations of main traffic by one clerk receiving the money, and another delivering the tickets. At minor stations, a periodical shifting of the station-clerk and the porter taking the tickets would embarrass the parties, and lead to an early discovery. Officers in the army, and those employed in Her Majesty's customs, are shifted from station to station, or port to port, and there could be no difficulty in the system being adopted on railways. The station-clerk is a hardworked and lowly-paid officer, and many of them get heavily into debt by furnishing a house or apartments upon their first appointment. The directors of one Railway Company have already determined to furnish these apartments, and there cannot be a doubt the railway will be amply rewarded. Station-clerks ought also to be initiated into their duties before the responsibility is thrown upon them. Short charges, accidentally made during the first three months, frequently involve a station-clerk.

COLLECTORS OF ACCOUNTS.—The Receipt given by the Collector should be an intermediate one, printed in red ink, with a Notice printed in black ink thereupon, that if a final receipt be not forwarded by the post from the accountant, within three days after the day of payment, a complaint must be sent to the Secretary of the Company. This system could be usefully adopted by other large carriers or concerns, as Breweries, &c.

Inspectors are now employed on many Railways, whose

only duty consists in visiting unexpectedly and scrutinizing the accounts at every station on the line, and testing the balance in the till.

The station-masters or agents ought also to be authorized to suspend and report station-clerks who keep bad company when off duty.

SAVINGS' BANKS.

The managers generally depend on the clerk or actuary appointed to the bank, who monopolizes the whole power. Branches of these banks are prejudicial, from the difficulty of maintaining a check over their receipts. In many of the best-managed Savings' Banks of London, managers attend in rotation, and receive the money themselves, one taking the money, and another signing the depositor's book, and seeing the amount entered in the cash-book; and a like course is pursued with money paid out. The duty, if efficiently done, becomes a real act of kindness and charity.

No manager or officer of the Bank should be recognized as the representative of any depositor; and parties who act in such a capacity should be closely interrogated as to the person they represent, when they attend to receive the sum to be withdrawn.

The balance in hand should be paid over to the Treasurer or Banker, the next day, whose receipt should be produced at the weekly meeting of the Board of Managers.

COMMERCIAL TRAVELLERS AND COLLECTORS.

Remittances should be made from every town, and a large sum ought never to be retained in hand. Commission ought only to be paid on remittances, which simplifies the old system of allowing it on the delivery of goods,

as it obviates the necessity of deductions on account of bad debts.

When more than one traveller is engaged by a firm, the same journey should be taken alternately.

Prior to the traveller commencing his journey, the following note to the customers might be usefully posted. The postage of one hundred would only cost 8s. 4d., and the expense of printing them would be a mere trifle.

"_____

"_____18

"Sir,

"Our traveller, Mr. ———, will take his ——— journey in the course of a day or two, when your further favours will oblige.

"Upon payment of any sum to our traveller, on our account, we shall feel greatly obliged by your advising us thereof by post, which will ensure accuracy of accounts, and cause the amount to be immediately credited to your account.

"I beg to remain, Sir,

"Your most obedient servant,

"To ———"

Or, at the close of the journey, the customers might be thanked for the sum paid to the traveller.

Brewers and Distillers should send to their large customers a final receipt after each reported payment, the buyers being advised that such will be the practice of the firm, the collectors merely giving a memorandum of the sum received.—*See Railways.*

GENERAL.

At the period of accounting, let the balance shown on the face of the account be always paid over. A knowledge that the balance of one account may be carried over to another often leads a servant into difficulties which he would otherwise avoid. The Society's

experience shows the neglect of this precaution to be a frightful cause of dishonesty.

No I O U ought ever be admitted in any form whatever.

Dishonesty is generally preceded by the individual adopting a style of life which his income is unable to support, or by some rash speculation. In these cases, an employer will do well to be vigilant, and admonish.

GUARANTEE SOCIETY,

No. 19, BIRCHIN LANE, CORNHILL, LONDON.

Being the house formerly occupied by the Corporation of the London Assurance.

ESTABLISHED IN 1840.

CAPITAL PAID-UP IN FULL, AND LARGE RESERVE FUND.

SURETISHIP UNDERTAKEN FOR THE FIDELITY OF PERSONS IN SITUATIONS OF TRUST, ON THE YEARLY PAYMENT OF A SMALL SUM AT A STIPULATED RATE PER CENTUM.

The Society was the first one instituted for such a purpose, and its security is adopted by

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